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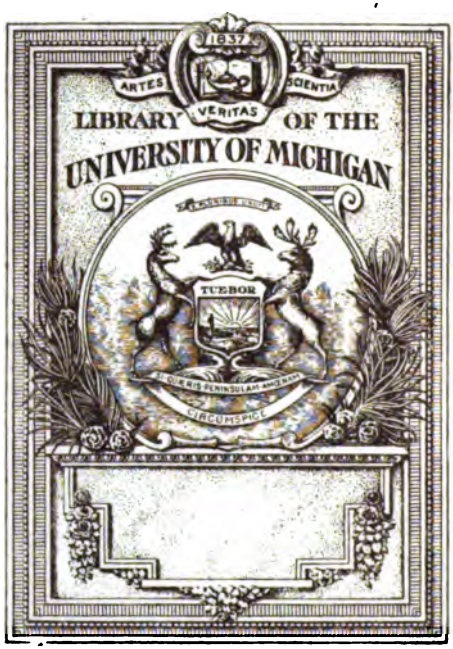

THE GIFT OF
Dr. Geo. H. Powers

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TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA,

DURING THE YEARS 1881 AND 1882.

SACRAMENTO:
Beard & Co., Stationers—Day & Joy, Printers.
1882.

Dr. Geo. H. Powers
215 Geary St.

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UNIV. OF MICH.
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REPORT OF COMMITTEE ON PUBLICATION.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: Your Committee have spared no reasonable exertion to secure the early appearance of the Transactions. Handicapped by circumstances beyond our control, we fully appreciate the stereotyped phrase of former committees, and with them, "*take pleasure*" in presenting to you the Twelfth Annual Report of the Society since its reorganization. In character and dress, we believe it equals, if it does not surpass, all of its predecessors.

WALLACE A. BRIGGS, Chairman,
GERRARD G. TYRRELL,
G. A. WHITE,
MATHEW GARDNER,
WM. ELLERY BRIGGS,
Members of Committee on Publication.

SACRAMENTO, June, 1882.

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THE TWELFTH ANNUAL MEETING

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA.

The Medical Society of the State of California assembled in its twelfth annual session in Covenant Hall, San Francisco, and was called to order by the President, Dr. Gerrard G. Tyrrell, at 10:45 A. M., April 19th, 1882.

Dr. George H. Powers, Chairman of the Committee of Arrangements, delivered the following Address of Welcome:

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: In behalf of your Committee of Arrangements it is permitted to me to stand before you this morning to utter this one word, "welcome." Fortunately for me, this word is itself eloquent enough to atone for the lack of oratorical art in him who uses it. It means that we are *glad* to see the old familiar faces reassembling in this hall, which has witnessed our greetings for several successive years. It means that we are *glad* to see each new face, to try and make each newcomer feel himself at home, and to inaugurate with him friendly relations. Through eleven years our Society has

annually met for interchange of ideas, for concentrating its influence, for mutual assistance in erecting landmarks to guide our steps in obscure and uncertain paths of professional duty, for reports of progress in medical and surgical science, and for the promotion of mutual acquaintance and good-fellowship in our ranks. May this, our twelfth meeting, be in no particular behind its predecessors in advancing these objects. Your committee have done their best to so arrange and lubricate the machinery of the Society business that there will be no delays and no omissions, and are very happy to report a very general response from the chairmen of the various committees, announcing their readiness to execute the duties intrusted to them. We have reason to congratulate you upon the many scholarly essays and suggestive themes which will be attractively presented to you. We are especially fortunate in having obtained the consent of Dr. G. M. Sternberg, of the United States Army, a distinguished biologist and original investigator, to address the Society to-morrow evening, on "Bacteria, and the Germ Theory of Disease." The lecture will be illustrated by photo-micrographs, shown by the calcium light. The opportunity is so rare and valuable that your committee have taken the liberty of appointing the early hour of seven for the lecture, and of arranging the order of business so that the evening may be free for this purpose, and we beg leave to ask that all important business be finished with the afternoon session. And lastly, the literary exercises of our session being concluded, the County Medical Society, the Society of German Physicians, and the Obstetrical Society of San Francisco, cordially ask the privilege of entertaining their visiting brethren at a banquet to be served at the Palace Hotel, where any unfortunate differences of opinion that may appear to exist during our formal work shall be banished by the softening influences of good-fellowship.

Referred to Committee on Publication.

The following invitation was received and accepted, with the thanks of the Society:

CALIFORNIA ACADEMY OF SCIENCES,
SAN FRANCISCO, April 17, 1882.

TO THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA—GENTLEMEN: I am instructed, on behalf of the California Academy of Sciences, to invite the members of your body to visit and inspect the "Crocker-Stanford Collection of Geology, Mineralogy, and Natural History," at our rooms, Mercantile Library Hall, Nos. 214, 216, and 218 Bush street, near Montgomery, on Wednesday next, between the hours of one and five P. M. Should these hours not be suitable, please to indicate any time that would be more convenient.

Respectfully,

CHARLES G. YALE,
Secretary California Academy of Sciences.

On motion of Dr. Henry Gibbons, the Society set apart the hour between one and two P. M. for the purpose of availing itself of the invitation.

The Board of Censors reported favorably on the credentials of the following applicants for membership:

G. P. Lee, of Merced, Medical College of the Pacific, 1876; Herman Voeller, of Sacramento, Medical College of the Pacific, 1876.

They were duly elected.

In the case of Dr. Julius Boushey, the Board of Censors reported as follows:

Your Board of Censors would respectfully report that, in the matter of the election of Dr. Julius Boushey, referred to them at the last meeting of the Society for settlement, they find that his election was legal, but it was at the same time irregular, and established a bad precedent. They would recommend that the matter be dropped without further discussion.

O. O. BURGESS,
H. JOHN CRUMPTON,
GEORGE H. POWERS,
J. O. HIRSCHFELDER.

Report received and adopted.

The following members were reported present during the various sessions of the Society:

San Francisco County—Lee O. Rogers, E. A. Follansbee, W. H. Mays, W. H. A. Hodgdon, H. H. Hart, C. G. Kenyon, H. M. Fiske, R. W. Murphy, B. F. Hardy, C. E. Blake, S. P. Rugg, Henry Gibbons, Henry Gibbons, Jr., H. S. Kirkpatrick, H. S. Baldwin, W. F. McNutt, M. E. Bucknell, L. M. F. Wanzer, G. J. Bucknall, K. N. Post, Washington Ayer, M. M. Chipman, G. J. Fitzgibbon, C. P. Chesley, T. J. LeTourneux, T. B. Dewitt, C. Cushing, Arthur B. Stout, L. Pawlicki, A. Barkan, C. N. Ellinwood, Jno. Scott, L. C. Lane, Geo. Chismore, C. H. Steele, G. J. VanVlack, J. F. Sullivan, John Wagner, J. G. Jewell, James Murphy, B. R. Swan, F. A. A. Belinge, M. McLaughlin, J. Boushey, M. A. Cachot, Thos. Green, F. B. Kane, G. H. Powers, A. M. Wilder, O. O. Burgess, J. O. Hirschfelder, R. A. McLean, Jas. Simpson, C. B. Brown, R. H. Plummer, S. W. Dennis, Stillman Holmes, W. E. Taylor, A. S. Adler.

Alameda County—G. H. Pinkerton, A. G. Anthony, W. L. Twichell, A. H. Agard, J. S. Adams, G. P. Reynolds, Wm. M. Brown, Wm. M. Lawlor, J. F. Burdick, H. T. Legler, J. F. Foulkes, E. H. Woolsey, A. S. Dubois, J. H. Wythe, W. S. Taylor, J. B. Trembly, S. J. Shuey, W. B. Simonton, F. H. Payne, P. Wheeler, W. P. Gibbons.

Sacramento County—G. G. Tyrrell, Ira E. Oatman, J. R. Laine, A. B. Nixon, W. E. Briggs, Herman Voeller, W. A. Briggs.

Stanislaus County—C. F. Miller.

San Joaquin County—F. Walton Todd, Asa Clark, Robt. K. Reid, J. L. Sargent, Thos. Phillips, C. R. Aiken.

Sonoma County—L. H. Patty.

Lake County—H. J. Crumpton.

Yolo County—Thomas Ross, W. E. Fifield.

Placer County—T. M. Todd.

Merced County—Geo. P. Lee, H. N. Bucker.

Santa Clara County—Robt. Caldwell, A. W. Saxe, W. S. Thorne, P. M. Lusson, J. B. Cox.
Napa County—E. T. Wilkins, F. W. Hatch.
Los Angeles County—H. S. Orme.
Santa Barbara County—Anabel McG. Stuart.
G. M. Sternberg, U. S. A.

The resignations of Drs. J. M. Briceland, Chas. Rowell and F. A. Seymour, were read and accepted.

Dr. A. W. Saxe moved that a committee of three be appointed to report to-morrow on the advisability of introducing an amendment to the Constitution, changing the time of meeting.
Carried.
Drs. Saxe, Crumpton and Orme, were appointed as such committee.

The President read the Annual Address, which was referred to the Committee on Publication, and its recommendations in regard to Plumbing and Drainage Inspectors and Criminal Insane Asylum, were referred to Committee on Legislation.

Dr. W. S. Thorne, Chairman, read Report of Committee on Practical Medicine.
Referred to Committee on Publication.
Minutes read and approved.
Adjourned.

AFTERNOON SESSION, APRIL 19TH, 1882.

Report of Committee on Medical Legislation read by the Chairman, Dr. Ira E. Oatman, and supplementary report by Dr. DeWitt.
On motion, both main and supplementary reports were placed on file, and the hour of 11 A. M., April 20th, 1882, was set apart for the special consideration of the subject of Medical Legislation.

The following preamble and resolutions were introduced by Dr. James Simpson, and their adoption moved and seconded:

Whereas, The science of medicine is broad, liberal and progressive; the extension of its usefulness and the increase of its influence would be greatly enhanced by allowing full freedom of thought and independence of action to all its members; therefore,

Resolved, That we fully indorse the action of the Medical Society of the State of New York, in adopting a Code of Ethics in accord with the present advanced views of the regular profession;

Resolved, That we recommend to the American Medical Association, the following rule, recently adopted by the Medical Society of the State of New York, governing consultations, as worthy of its favorable consideration, viz: Members of all Medical Societies in affiliation with this Association, may meet in consultation *legally qualified practitioners of medicine.* Emergencies may occur in which all restrictions should, in the judgment of practitioners, yield to the demand of humanity.

In behalf of the Sacramento Society for Medical Improvement, Dr. Wallace A. Briggs moved the adoption of the following resolution as a substitute for that presented by Dr. Simpson:

Resolved, That we protest against any change in Paragraph 1, of Article IV, of the American Code of Medical Ethics, in regard to the duties of physician in consultation, and hereby instruct our delegates to resist any attempt at such change at the coming session of the American Medical Association, to be held in St. Paul, Minnesota, June 6th, 1882.

On motion, both resolutions were laid on the table until 2 P. M., April 20th, 1882.

The Board of Censors reported favorably on the credentials of:

NAME.	SCHOOL.	DATE.
A. B Stuart	Berkshire Medical College	1856
Howard P. Miller	University of Vermont	1878
Jonas Clark	Harvard Medical College	1875
Nathaniel B. Coleman	Dartmouth Medical College	1865

They were duly elected.

Report of Board of Examiners read by its Secretary, Dr. Plummer.

Referred to Committee on Publication.

Dr. Oatman read Treasurer's report.

Referred to Auditing Committee, consisting of Drs. Ellinwood, Simpson and Gibbons.

Board of Censors reported favorably on the credentials of Henry T. Legler, University of Leipsic, 1844, and he was accordingly elected.

The following gentlemen were elected honorary members of the Society: Charles Sutherland, Medical Director, United States Army; Elisha Bailey, Surgeon, United States Army; J. C. Bailey, Surgeon, United States Army; G. M. Sternberg, Surgeon, United States Army.

Dr. W. H. Mays, Chairman, read report on Obstetrics.

Referred to Committee on Publication.

The Auditing Committee reported the accounts of the Treasurer of the Society and of the Treasurer of the Board of Examiners as correct.

Report received and adopted.

Dr. William Ellery Briggs, Chairman, read report of Committee on Ophthalmology.

Referred to Committee on Publication.

Supplementary report on Practical Medicine presented by Dr. Arthur B. Stout and referred to Committee on Publication.

The Committee appointed to consider the advisability of changing the time of meeting of the Society, reported in favor of amending Section 1, Article IV, of the Constitution, by substituting the word "May" for "April," Dr. H. S. Orme dissenting.

Dr. Barkan exhibited numerous ophthalmic and aural instruments.

Minutes read and approved.

Adjourned to 7 o'clock P. M.

EVENING SESSION, APRIL 19TH, 1882.

In accordance with a resolution passed last year by this Society, the President appointed the following gentlemen to define the duties of the respective committees:

Committee on Gynecology.—Drs. Cushing, May, and Oatman.

Committee on Ophthalmology.—Drs. Wilder, Barkan, and Briggs.

Committee on Necrology.—Drs. Henry Gibbons, Hodgdon and Ellinwood.

Dr. E. T. Wilkins, Chairman, read report on Mental Diseases.

Referred to Committee on Publication.

Dr. A. M. Wilder read supplementary report on Ophthalmology.

Referred to Committee on Publication.

The following preambles and resolutions, introduced by Dr. Wilder, were adopted:

Whereas, The members of the California State Medical Society fully recognize the importance of having definite and uniform standards of examination for color blindness, and tests for visual acuteness, in persons employed in the navy and merchant marine; and

Whereas, There is now pending before Congress, House Resolution No. 135, being a Joint Resolution relating to color blindness and visual acuteness in persons employed in the navy and merchant marine, and providing for the holding

of an International Commission for the purpose of determining definite standards for the government of all Nations; therefore, be it

Resolved, That the members of the California State Medical Society, assembled in annual meeting, do heartily approve of the provisions of said House Resolution No. 135, and do urge upon the California delegation, in the Congress of the United States, to do all in their power toward securing the passage of said Resolution. And be it further

Resolved, That the Secretary of this Society is hereby instructed to forward, at once, to each Representative and each Senator from California, now serving in the Congress of the United States, a copy of these Resolutions.

On motion of Dr. Pinkerton, Dr. A. M. Wilder was appointed to co-operate with the Committee on Legislation in securing proper legislation on the subject of color blindness.

Dr. A. W. Saxe, Chairman, read report of Committee on Medical Education.

Referred to Committee on Publication.

On motion of Dr. George Chismore, Dr. Hocking, of New Zealand, was invited to a seat in the Convention.

Minutes read and approved.

Adjourned.

MORNING SESSION, APRIL 20TH, 1882.

Report of Committee on Gynecology read by its Chairman, Dr. Clinton Cushing, and referred to Committee on Publication.

The ill health of Dr. Hatch preventing his presence at the Society, his report, as Chairman of the Committee on Medical Topography, was referred to Committee on Publication.

On motion, the consideration of the subject of Medical Law was postponed until the hour of 2 P. M., April 20th, 1882.

Report of Committee on Hygiene and State Medicine was read by the Chairman, Dr. Henry Gibbons, and referred to Committee on Publication.

The Board of Censors reported favorably on the credentials of Dr. Thomas Phillips, and on motion he was declared duly elected.

Dr. H. S. Orme presented the report of the Nominating Committee as follows:

SAN FRANCISCO, April 20, 1882.

To the President and Members of the State of California Medical Society: We, your Committee appointed to make nominations of officers of the Society for the ensuing year respectfully present the following names:

President—Dr. W. S. Thorne, San Jose.

Vice-Presidents—Drs. Ira E. Oatman, Sacramento; Wm. E. Taylor, San Francisco; E. A. Stockton, Stockton; H. J. Crumpton, Lakeport.

Treasurer—Dr. Ira E. Oatman, Sacramento.

Permanent Secretary—Dr. Wallace A. Briggs, Sacramento.

Assistant Secretaries—Drs. Thomas Ross, Woodland; C. G. Kenyon, San Francisco.

Board of Censors—Drs. O. O. Burgess, San Francisco; G. W. Davis, Sacramento; G. H. Powers, San Francisco; A. H. Pratt, Oakland; C. A. Kirkpatrick, San Francisco.

Board of Examiners—Drs. R. H. Plummer, San Francisco; C. Cushing, San Francisco; W. F. McNutt, San Francisco; James Simpson, San Francisco; H. Gibbons, Jr., San Francisco; A. H. Agard, Oakland; C. N. Ellinwood, San Francisco.

Alternates—Drs. J. S. Adams, Oakland; A. M. Wilder, San Francisco; C. G. Kenyon, San Francisco.

Place of next meeting, San Francisco.

Attest: THOMAS ROSS, Secretary. HENRY S. ORME, President.

Minority report of Nominating Committee, made by Dr. R. H. Plummer, excepting to the nomination for President, on the ground that the presidency rightfully belongs to San Francisco.

On motion of Dr. Simpson, the name of Dr. L. C. Lane was substituted for that of Dr. Thorne, and the report was accepted.

On motion of Dr. A. W. Saxe, the Secretary was instructed to cast the ballot of the Society in favor of the report of the Nominating Committee as amended.

The Secretary accordingly cast the ballot, and the foregoing nominees were declared duly elected.

On motion of Dr. Powers, the expenditure of a sum, not to exceed twenty dollars, was authorized for the purpose of procuring calcium lights, etc., for the illustration of the lecture of Dr. Sternberg.

Dr. E. T. Wilkins introduced the following:

Whereas, The address of our President, Dr. Tyrrell, treats of subjects of unusual interest to the profession and the public; and *whereas*, legislation will be required on some of them, and as the reasons for this legislation are given in condensed form and concise language in said address; it is

Resolved, That two thousand copies of the address be published in pamphlet form for distribution.

Amended by inserting "one" instead of "two" thousand and adopted.

Dr. Kate N. Post, as Chairman, read report on Diseases of Women and Children, which was referred to Committee on Publication.

Dr. A. W. Saxe, seconded by Dr. Briggs, moved that all papers referred to Committee on Publication, be handed in to the Secretary within one week after adjournment, under penalty of exclusion from the transactions.

Dr. Oatman, seconded by Dr. Gibbons, moved to amend by extending the time to two weeks.

Motion amended and carried.

On motion of Dr. Barkan, Professor Virchow was elected an honorary member of this Society.

On motion, Drs. S. W. Dennis, J. C. Tucker and H. S. Orme were elected delegates to the American Medical Association, and in addition, the Secretary was authorized to issue credentials to such other members as signify their intention of attending its coming session—not to exceed the number of delegates rightfully belonging to the Society.

Dr. George W. Davis read paper entitled Medical Experts.

Referred to Committee on Medical Legislation and Committee on Publication.

A special vote of thanks was tendered to Dr. Davis for his able paper.

Drs. Saxe and Cushing moved that Article III, Section 1, of the Constitution, be amended so as to read as follows:

"The officers of the Society shall be a President, four Vice-Presidents, one Permanent and two Assistant Secretaries, a Treasurer, a Board of Censors, consisting of five members, and a Board of Medical Examiners, consisting of seven active members, and three Alternates. These officers shall be nominated by a committee consisting of one member from each ten of the members of this Society from the different counties in the State. Each county having less than ten members shall be entitled to one member on the Nominating Committee. The nominations shall be made on the morning of the second day of the meeting, and such nominations may be elected by ballot. Each officer shall hold appointment for one year, or until his successor is elected."

Motion was made and carried that authors of papers coming before the Society this afternoon be restricted to fifteen

minutes in their reading, and when longer time is required, they be requested to present the remainder in abstract.

Minutes read and approved.

Adjourned.

AFTERNOON SESSION, APRIL 20TH, 1882.

On motion, the subject of Medical Law was first taken from the table, and remarks were made by Drs. R. H. Plummer and R. E. Taylor.

Moved by Dr. Plummer to consider the medical bill proposed by the Board of Examiners last year, section by section.

Carried.

The various sections were amended so as to read as follows:

AN ACT TO REGULATE THE PRACTICE OF MEDICINE AND SURGERY IN THE STATE OF CALIFORNIA.

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. The Governor of the State of California shall, within thirty days after the passage of this Act, and every four years thereafter, appoint a State Board of Medical Examiners, consisting of seven representative medical men, who shall hold office for the period of four years from the time of their appointment, and until their successors shall have been appointed and qualified. The Examiners so appointed must be regular graduates in medicine from some legally chartered medical school. Vacancies occurring in said Board of Examiners shall be filled in like manner, by the Governor, for the unexpired term. Each of said Medical Examiners shall, before entering upon the duties of his office, take and subscribe, before an officer authorized to administer an oath, the following oath or affirmation: "I do solemnly swear (or affirm, as the case may be), that I am a regular graduate in medicine from a legally chartered medical school; that I will

support the Constitution of the United States, and the Constitution of the State of California; and that I will faithfully discharge the duties of the office of Medical Examiner according to the best of my ability." Said oath or affirmation shall be indorsed on the commission of the Medical Examiner so taking the same.

SEC. 2. Every person practicing medicine or surgery, or any of the departments of medicine or surgery, in this State, shall be a regular graduate in medicine from some legally chartered medical school, and shall appear before the State Board of Medical Examiners above named, and submit to an examination by the Board in anatomy, physiology, pathology, toxicology, chemistry, mechanical surgery, and mechanical obstetrics; and if the examination be satisfactory to not less than five members of the Board, it shall issue its certificate to the applicant in accordance with the fact. The certificate shall be signed by not less than five of the members of the Board of Examiners, and sealed with the seal of the Board.

SEC. 3. The Board of Examiners shall organize in the City of San Francisco within one month after their appointment by the Governor, by electing from their own number a President, Vice-President, Secretary, and Treasurer, who shall hold their respective positions during the pleasure of the Board. The Board shall procure a seal, and shall receive, through their Secretary, applications for examination. The Secretary shall furnish, quarterly, to the County Clerks of the several counties of the State, a list of all persons receiving certificates. The stated meetings of the Board shall be held quarterly, in San Francisco, on the second Monday of January, April, July, and October of each year, for the examination of applicants for certificates, and such other business as may properly come before it. Due notice of each stated meeting of the Board shall be given by publication, twice within one week next preceding the meeting, in two daily papers published in the City of San Francisco. Special meet-

ings of the Board shall be called by the President for the examination of candidates and other purposes, on the written request of three members. Said Board may adopt such rules, regulations, or by-laws as deemed necessary for its government, to secure the most complete and effective success of this Act. No special meeting of the Board shall be valid unless every member thereof shall have been notified by written notice from the Secretary, sent to his residence or place of business.

SEC. 4. Each member of the Board of Examiners shall receive a compensation of eight dollars ($8) per diem for each day in actual session examining applicants for certificates, said compensation to be paid by the State Treasurer, upon presentation of certificate duly signed by the President and Secretary of the Board, out of the General Fund. The Secretary shall receive a salary of six hundred dollars ($600) per annum, in addition to the above per diem, to be paid by the State Treasurer, in like manner.

SEC. 5. All examinations of applicants for certificates shall be made directly by the Board of Examiners. The examination may be conducted in whole or in part in writing; and the certificate given by the Board shall authorize the person named therein to practice medicine and surgery in this State. The President shall appoint a committee at the commencement of each meeting, when candidates are to be examined, to prepare questions for the written portion of the examination; said questions to be submitted to and approved by a majority of the Board.

SEC. 6. Every person holding a certificate from the Board of Examiners shall have it recorded in the office of the County Clerk of the county in which the holder of said certificate lives, and the record shall be indorsed on the certificate by the County Clerk recording the same. Any person removing to another county to practice, shall have said record properly canceled, which cancellation must be noted on said certificate;

and the holder of said certificate shall pay to the County Clerk the usual fees for making such record and cancellation; and said certificate shall be re-recorded in the county to which the holder removes.

SEC. 7. The County Clerks in the several counties of the State shall keep, in a book provided for the purpose, a complete list of the certificates received and recorded by them, with the date of the register and the date of the cancellation of record; and said record shall be open to public inspection during business hours.

SEC. 8. Each candidate for examination shall pay a fee of thirty dollars ($30), in advance, for said examination, and no further charge shall be made by the Board. All the moneys thus received by the Board, less the current expenses of the same, shall be paid over by the Treasurer to the State Treasurer, quarterly, to be placed by him in the General Fund.

SEC. 9. Any person practicing medicine or surgery, or any of the departments of medicine or surgery, in this State, without first having procured a certificate of examination to practice, from the Board of Examiners appointed by the Governor under Section One of this Act, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be punished for the first offense by a fine of fifty dollars ($50), or imprisonment in the county jail for thirty (30) days; for the second offense, by a fine of two hundred and fifty dollars ($250), or imprisonment for one hundred and fifty (150) days; for the third offense, by a fine of five hundred dollars ($500), or imprisonment for three hundred and sixty-five (365) days; and for the fourth, and each and every subsequent offense, by both a fine of five hundred dollars ($500) and imprionment for the period of three hundred and sixty-five (365) days. And every person filing for record as his or her own, or attempting to file for record as his or her own, the certificate of another, shall be guilty of felony, and, upon conviction thereof, shall be subject to such fine and imprisonment as are made and pro-

vided by the statute of this State for the crime of forgery; *provided*, that no person who holds a valid certificate from one of the Boards of Examiners heretofore existing under the provisions of "An Act to regulate the practice of medicine in the State of California," approved April third, eighteen hundred and seventy-six, or "An Act supplemental and amendatory to said Act," passed April first, eighteen hundred and seventy-eight, shall be compelled to procure a new certificate; and it shall be and is hereby made the duty of the District Attorneys and Prosecuting Attorneys in the several counties of the State, to prosecute all persons who violate the provisions of this Act. The word "certificate," wherever used in this Act, shall be held to mean the certificate mentioned in Section Two of this Act.

SEC. 10. Any person shall be regarded as practicing medicine or surgery within the meaning of this Act, who shall profess publicly to be a physician or doctor; or to cure diseases; or to heal the sick; or who shall habitually prescribe for or treat the sick, injured, or deformed, by medicine, drugs, manipulation, or any other expedient; or who shall prefix to his or her name the letters "Dr.," or word "Doctor" (meaning medical doctor), or append to his or her name the letters "M. D."

SEC. 11. An Act entitled an Act to regulate the practice of medicine in the State of California, approved April third, eighteen hundred and seventy-six, and an Act supplemental thereto and amendatory thereof, passed April first, eighteen hundred and seventy-eight, are hereby repealed.

SEC. 12. This Act shall take effect from and after its passage.

Dr. Simpson, before the adoption of the proposed law as a whole, moved that the whole matter be laid on the table.

Carried.

Dr. Simpson's resolution, with that presented by the Sacramento Society for Medical Improvement, was taken from the table, and on motion returned.

Dr. C. G. Kenyon read Report of Committee on Necrology, which was referred to Committee on Publication.

Resignation of Dr. W. A. Washington presented and accepted.

Report of Committee on Histology and Microscopy read by its Chairman, Dr. J. H. Wythe, and referred to Committee on Publication.

Paper by Dr. R. W. Murphy, on Venesection in Paralysis, presented, and referred to Committee on Publication.

Report on Indigenous Botany, read by its Chairman, Dr. W. P. Gibbons, referred to Committee on Publication.

On motion, the thanks of the Society were tendered to Dr. Gibbons for his able paper.

The Board of Censors reported favorably on the credentials of Francis B. Kane, Royal College of Surgery, Ireland, 1871, and he was duly elected.

The following resolution, submitted by Dr. Wilkins, was carried:

Resolved, That we, the members of the Medical Society of the State of California, most cordially and emphatically indorse the views of our President, as expressed in his address, in regard to the impropriety and unwisdom of consulting with Homeopathists, and concur in his recommendations on this subject.

Dr. J. Grey Jewell offered the following resolutions, which were adopted:

Resolved, That the words "an ordinary member" be stricken out of the State Medical Society's Diploma, and the words "an active member" be inserted instead thereof;

Resolved, That all new members be furnished with the diploma as above changed, and all the present members be supplied with the same, on application to the Secretary, and the payment of the cost of the diploma.

Dr. H. J. Crumpton read paper entitled Illustrations of Country Surgery, which was referred to Committee on Publication.

Report of Committee on Publication submitted, accepted, and Committee discharged.

Minutes read and approved.

Adjourned.

EVENING SESSION, APRIL 20TH, 1882.

Dr. Sternberg read paper on Bacteria and the Germ Theory of Disease, illustrated by micro-photographs.

On motion, the thanks of the Society were tendered to Dr. Sternberg and a copy of his paper requested for publication in the Transactions.

The dues of the Assistant Secretaries were remitted.

Dr. Gibbons, by request of Dr. Tucker, one of our delegates to the National Association, introduced the subject of a National Medical Bureau, with a proposition that the Association be requested by our delegates, to urge the organization of such a Bureau. The objects contemplated, are the accumulation of vital statistics from all sections of the Union, and the securing of investigations and reports on all subjects concerning health and diseases, etc. After some discussion, in which it was assumed that the National Board of Health, and the various State and local Boards, were sufficient to compass the purpose, at least for the present, the subject was dismissed.

The Board of Censors reported favorably on the credentials of Wm. S. Taylor, Jefferson Medical College, 1874, and he was duly elected.

The vote to lay the Medical Bill on the table was reconsidered, and the Bill referred to Committee on Legislation.

A vote of thanks was extended to Dr. Tyrrell, for the able manner in which he had presided over the deliberations of the Society.

Minutes read and approved.

Adjourned.

WALLACE A. BRIGGS,
Permanent Secretary.

THE ANNUAL ADDRESS.

By GERRARD GEORGE TYRRELL, M. K. & Q. C. P., I., L. R. C. S., I., L. M.

President of the Society.

Ladies and Gentlemen of the Medical Society of the State of California: The most pleasing part of my duty in addressing you this morning, is to express my grateful thanks for the honor you have conferred upon me in deeming me worthy of presiding over this, the largest society of votaries to science upon the Pacific Coast. I assure you that I appreciate the extent of your partiality to the utmost, and trust that in carrying out your wishes as your presiding officer, I may so act as to bring with me into my retirement your continued respect and good will. To hope to address you in an exhaustive manner upon any particular subject in medicine, is a task so far beyond my capabilities, or, in truth, my desire, that I will not essay it, but rather endeavor to secure your attention while expressing, in an informal manner, a few thoughts which in the interest of regular medicine have occurred to me within the past year.

It has been remarked that the departed year was one of unusual interest to the medical profession throughout the world, chiefly through the impetus given to scientific knowledge by the meeting together in congress of that vast assemblage of educated, earnest workers in medicine and skilled practitioners in surgery, who, coming from all parts of the civilized world to add to the store of knowledge already in our possession, have afforded us an example of the unselfishness of our profession, and how ready it is to sacrifice personal interest in the cause of humanity. In a smaller way as to members, but upon an equality in principle, may we regard

the annual gathering of our Society. Here we have students of nature and votaries to science from all parts of this great State, leaving their mountain homes, where their services are always requisite and always valuable, or taking long and toilsome journeys over the lowland plains or sandy wastes, generally sacrificing their pecuniary interests, that they may here spread the truth they know, or learn from others the truths they have to tell. All are met for one purpose—to demonstrate the power of truth, to strengthen each other in the pursuit of knowledge, and the universal desire to advance the cause of civilization by making known what they have learned in the great laboratory of nature towards saving life, alleviating suffering, or, greatest of all, preventing disease.

"Medicine," said the late philosopher and accomplished physician, Maurice Reynaud, "is a matter not of faith, but of knowledge, and its precepts have no other value than that which our reason accords to them." It is this fact that makes our science and our art progressive. We must have knowledge, and such knowledge that the reasoning power with which we are endowed does not revolt against it. It must have truth for its basis, and honesty in its belief. To scientific medicine, elaborated out of the accumulated wisdom of ages, do we owe all that is known, not only of the causation of disease, but also of its mode of cure. This "science of improvement" still continues from inductive premises to deductive fact, benefiting the art of medicine, and, by the bright light of science and of truth, revealing the wonders of animated nature, scattering the gloom of superstitions and beliefs in the mystery of disease, and proving that beneath its phenomena we have agencies at work operating in accordance with natural law, and that through such law alone can we hope to arrest or prevent it. When we reflect upon the researches of Pasteur, Drysdale, Klebs, Koch, Klein, Sanderson, Cruvelli, and a host of others in the field of experimental physiology, pregnant as they are with the grandest results, we seem to be approaching the very verge of a discovery which will so vastly increase our sway over those diseases in whose pres-

ence we now stand almost powerless, that in time we may practically arrest and exterminate them. In view of this fact, how childish and silly does it seem to us, armed with a knowledge of the past, and apparently an ever widening field of newly discovered truths before us in the future, to hear intelligent people remark that we regularly educated physicians belong to the "old school," as though our art were a thing of the dead past, and not pulsating with the onward surging wave of the living present; to tell *us* that all that is new and progressive in medicine came into existence through the infinitesimal nothingness of what this generation in its wisdom is pleased to call the "new school," whose disciples are making such earnest and persistent efforts toward recognition by regular practitioners, encouraged in their endeavor since Dr. Bristow, in his now famous address before the British Medical Association, at Ryde, promulgated the idea that association in consultation with homeopaths is possible without loss of dignity or self-respect. Happily for science, this strange and derogatory doctrine was instantly and decisively repudiated by the profession of Great Britain, and the address condemned, as not representative of its ideas, by the association in which it took its rise. I would not have alluded to this subject had not an address been sent to me as one delivered before a California Medical Society, in which, while admiring and acknowledging its literary ability, and earnestly indorsing many of the salient points contained therein, I find sufficient evidence to assure me that this leveling down doctrine had reached the Pacific Coast, as the following extract will show. The author having quoted and cordially subscribed to that portion of Dr. Bristow's address in which he makes a special plea for breaking down the barriers which now separate regular from irregular medicine, and which Hahnemann declared to be an "impassable gulf," says:

"I am not sure that the representatives of the homeopathic faith in this city are behind the regular practitioner in intelligence, education, and gentlemanly bearing; and however much my reason may rebel against their peculiar postulates,

it cannot be denied that they possess the confidence of no inconsiderable portion of the community. To be forever posing in a militant attitude toward them is not conducive to the elevation of medical morals. The proposal to consult with them at the bedside has raised no little outcry in orthodox circles, but it is difficult to see where the valid objection lies. The regular physician who consents to see a patient in company with his homeopathic attendant need be in no fear but that, while working together, the doctrine of Hahnemann will be left entirely out of sight. Indeed, the educated homeopathist is rather inclined to laugh at these doctrines, so far from taking them as his guide. It is surprising how well acquainted he will prove to be with the principles of legitimate medicine, and how little real antagonism he entertains toward them. To consult with one of our own faith who still clings to methods and beliefs long superseded, is often a far more difficult matter."

It will perhaps be a matter of surprise to learn that this quotation is from the pen of a professor in one of our honored Universities, and the President of one of the San Francisco Medical Societies. Emanating from such a source, it demands our most respectful consideration, containing, as it does, the expression of a tendency toward the renunciation of those principles upon which legitimate medicine has taken its stand, and which have carried it to the exalted position it now occupies in the history of the world, viz: truth, honor, honesty, justice, experience, observation, and scientific fact. To present this matter fairly, we will analyze the quotation into the several reasons given by the distinguished author against which no valid objection can lie to debar us from meeting homeopathic practitioners at the bedside.

First—They are not behind the regular practitioner in education, intelligence, or gentlemanly bearing.

Second—Although reason rebels against their peculiar postulates, they enjoy the confidence of no inconsiderable portion of the community.

Third—A militant attitude toward them is not conducive to medical morality.

Fourth—That in consultation, Hahnemann and his doctrines will be ignored, and in addition, will be laughed at by the homeopathic attendant.

Fifth — Because you will be surprised how much your homeopathist knows of the principles of regular medicine, and how much humbug there is in his antagonism to them.

Sixth—It is easier to consult with an educated homeopath than a physician in regular standing whose beliefs are antiquated, and whose methods are superseded.

Let us follow these reasons to their legitimate conclusion. To the first reason given there can be no valid objection, if the assumption were only true, which our experience leads us to deny; but to say that we can consult with a man against whose postulates our reason rebels, and whose pretensions we know to be a falsehood, because he has the confidence of no inconsiderable portion of the community, is asking us to countenance a fraud, in order that we may pocket a fee. If this is to be our rule of conduct, why not consult with Lipotai, or similar Chinese impostors, with magnetic healers or spiritual doctors, or electro-plated therapeutists, and other charlatans, who also share a large portion of the confidence of the public not only here, but in every other city upon the Pacific Coast? If consultation is to be made upon the basis that the homeopath, being an intelligent, educated gentleman, will, at the bedside, ignore Hahnemann, laugh at his doctrines, surprise us with his appreciation of the principles of regular medicine, and to oppose his pretensions is rebellion against medical morality, then are we to make ourselves participators in the criminal deceit of consulting with a man who is pretending to be what he is not—professing homeopathy to his confiding patient, and laughing at its absurdities to his presumably honest consultant. Truly, this is a morality that cannot be very elevating to the medical standard of our profession, as seen by disinterested parties. The last plea for fraternization is, if possible, less defensible than any—that it is easier to consult with an edu-

cated homeopath who has no faith in his own practice, and pretends to have no faith in ours, than to advise with a regularly educated physician who still clings to methods and beliefs long since superseded, which would of necessity include those who still believe that bleeding is often beneficial in disease, and that a dose of calomel has some depurative action upon the liver. From this analysis I think it will be conceded by every fair thinking man that all the arguments used by the author of the San Francisco address for fraternization with homeopathists, are in truth the most convincing reasons why we should *not* meet these gentlemen in consultation. We cannot, in honor and honesty, meet them if they are homeopathists, because there can be no interchange of ideas where hopeless incompatibility of principles exist—their notions of pathology and therapeutics being fundamentally contradictory and antagonistic to ours.

"If, for the purpose of securing patronage, the homeopathist pretends to a superior system in which he does not believe, and to a better practice which he does not follow, he is a charlatan and a pretender, unworthy of confidence or honorable association. If a regular physician, for the sake of a consultation fee, or for the purpose of obtaining popular favor, sacrifices his convictions, relinquishes measures in which he has confidence, and consents to a practice he is sure is useless, he may be a fitting person for such consultations, but he is not an honorable member of an honorable profession. If between an honest homeopath and an equally honest regular physician there can be no agreement and co-operation in the treatment of a case, consultations between such are certainly useless. No opinion need be expressed respecting consultations between parties one or both of whom are insincere. Should the homeopathist abandon his system, or the regular physician embrace it, there may be harmony and agreement, but until then, consistency and honor, no less than proper professional feeling, will forbid the unnatural alliance."—*Professor A. B. Palmer, North American Review.*

I find that at the last meeting of the Medical Society of the State of New York, this very question of consultation with homeopaths formed part of the presidential address. In his opinion there was an objection to meeting any man who was not satisfied with the simple name of physician or medical man. He further says: "This question of consultation has often been raised. It was claimed that the sick man had a right to select his doctor. Certainly, but the doctor has also a right to select his patient. The patient knew beforehand that he could not expect a consultation between his homeopathic attendant and one of us, and he took his choice. From his youngest days onward he had but one rule, and that was to be governed by the law of his profession—so long as these laws exist, obey them. If the majority does not wish to obey them any longer, abolish them when the time has come. It is asserted by many that this time has come, and that there are good reasons for abolishing the boundaries between the several *classes* of medical men. I do not speak of *schools* of medical men, for modern medicine is not divided into schools. If we have reason to believe not only that medical science is one and indivisible, and based upon logic and experimentation, but that the profession of the State of New York are sufficiently imbued with that spirit of logic and experimental science, we may overlook differences, and meet with a spirit of reconciliation those who do not encounter us any more with the dicta of a school or sect."

This expression of opinion is, I think, in consonance with the ideas of every thinking medical man. We do not pose in a militant attitude against those homeopaths who are homeopaths, honest in their belief—we ignore them; but we do oppose those who, calling themselves homeopaths, are using the name, not as an exposition of their practice, but for the purpose of trade—a means of obtaining the confidence and patronage of the public, which, under the simple name of physician, would be denied to all whose educational acquirements were not of an order that would demand recognition at the hands of an intelligent community. I have been somewhat

elaborate upon this vexed question, because I believe that in the presence upon this coast of such a seeming dallying with this quintessence of imposture, as appears in the address I have made the subject of these remarks, that it was my duty to mention it before this Society. The question will come before the National Medical Association at its next meeting, and we should be prepared to define our position upon it. We must either emulate the noble example of Germany, who, by its Central Committee resolved "that it is self-evident that medical men cannot consult with those who call themselves homeopaths," or, with Great Britain, determine to have nothing to do with anything in medicine that savors of fraud, deception, or trifling with truth, or we must abide the inevitable disastrous result.

The science of medicine is knowledge, not faith; and whenever, for expediency, popularity, or pecuniary reward, we travel outside the domain of knowledge or theory that we believe to be true, then do we rightly and justly forfeit the esteem and confidence of the public who has trusted and confided in our honor and honesty, and sink beneath the level of the most unprincipled quack whose only motive and highest ambition is that of being a successful knave. "Nothing," says the able editor of the *London Lancet*, "is so much needed, just now, as the rise in our midst of a stern and uncompromising apostle of sincerity in science—a man of unpitying animosity to humbug in all its forms, who will not hesitate at any bidding to denounce wrong doing and untruthfulness, let who may be the offender. It is time that a spirit of manliness went out in our ranks to chase away the lying spirit of mock courtesy—this faint-hearted and time-serving sentimentality which makes us so ready to look kindly upon any pretender, and so reluctant to expose any pretense." I cordially coincide with the sentiment expressed in these brave words by this brave editor. The time has come when we must cease dallying with this wanton spirit of mock courtesy and time-serving sentimentality that would make us forget the glorious history of our art, with all its attendant triumphs, to do honor to a fiction in science,

an imposition on credulity, and accept upon equality the *traders* in a name. I believe that I have now explicitly defined my position upon this subject without fear, favor, or mental reservation. I am utterly opposed to professional consultation with any man who assumes a distinctive title to adopt any exclusive system of medicine, as rational medicine knows none. I am opposed to quackery in any form, regular or irregular; have always opposed it, and will continue to do so whenever and wherever I can. The science of medicine needs no pretense to establish its truth, no mystery to enhance its merit, no falsehood to make known its claims. It stands to-day the immortal testament of our progress, the holiest temple of our civilization.

Trusting that the views here enunciated will meet with the approval of the Medical Society of the State of California, a Society so remarkable since its inception for the steadfast, earnest manner in which it has sought to elevate to the highest standard the professional dignity and honor of its members, I would respectfully suggest and recommend that our delegates to the American Medical Association be instructed, if the question should arise and be discussed, to protest earnestly and emphatically against any change in the American Code of Medical Ethics, in so far as it relates to the matter of consultation with irregular practitioners.

I now desire to bring under your notice as briefly as possible a subject which may perhaps be trenching somewhat upon the prerogative of the State Board of Health, but which nevertheless is of such importance to the welfare of the community that I may be pardoned in desiring to hear an expression of opinion from this Society upon it. I refer to the frequency of zymotic diseases as a result of poisoning by sewer gas, which obtains circulation in our buildings and dwellings through the agency of imperfect or defective plumbing, and the necessity that exists of obtaining such legislation as will eventuate in placing the entire control of the plumbing and drainage of our buildings and dwellings, as far as their efficiency and safety is concerned, in the hands of the Boards of Health. Such a

law at present exists in the City of New York, by which the plumbing and drainage of all buildings, both public and private, is executed in accordance with plans previously approved, in writing, by the Board of Health, who are also authorized to receive and place on file drawings and descriptions of the plumbing and drainage of buildings, erected previous to the passage of the Act, in their respective cities. A law somewhat similar has been enacted in the District of Columbia, also in Pennsylvania, and I believe in Maryland. In the District of Columbia the Commissioners, on recommendation of the Health Officer, appoint an Inspector of Plumbing, to inspect all houses in course of erection, and pass upon their plumbing and sewerage. A refusal to comply with the requirements of the Act is punishable by a fine of from $25 to $200, or imprisonment for thirty days. The law proposed for Pennsylvania provided that after the passage of the Act no dwelling or building was to be occupied, for any purpose whatsoever, until the Inspector had decided, after due examination, that its drainage and plumbing were perfectly secure, and furnished a certificate attesting the same. When we reflect upon the number of valuable lives that are yearly sacrificed by the directly poisonous effluvia emanating from defective or obstructed sewage, broken pipes, inefficient joints, useless traps, and other evils attendant upon dishonest plumbing, the subject gains additional interest, and seems well worthy the serious attention of this Society.

Dr. Baylis, in his work upon house drainage, says: "If we look for the cause of the large mortality from zymotic diseases in our cities, we find it principally in sewer gas poisoning. Other causes operate to swell the total, but to bad plumbing work we may attribute the prevalence of pythogenic pneumonia, peritonitis, inflammatory rheumatism, typhoid fever, croup, diphtheria, and many kindred diseases which are almost epidemic in all our large cities. Unfortunately for the progress of sanitary reform, the difference between good and bad plumbing work is usually so slight as to escape the notice of any but a trained expert, but it is commonly great enough to

exert an active and far-reaching power for mischief." Having, then, described the pipe system of an average New York house of the better sort, he comes to the conclusion that everything was so favorable to sewer gas poisoning that he no longer wondered at the great mortality from disease of pythogenic origin, and thinks that as the plumbing work is commonly done, it would be better for most of us if we had to bring our water in buckets from a public hydrant, and carry our waste to the culvert at the nearest street corner. As he truly says, the plumber's work is covered by the builder, and at once hidden from sight. In a few weeks or months the occupant of the house complains of an obstructed sewer, a leak in the soil pipe, a troublesome odor that cannot be accounted for, or some other of the numerous evils that follow in the wake of "scamped" plumbing. The Inspector investigates, and finds a pipe of insufficient size, the joints put together with common mortar, instead of cement, improperly laid, so that the joints have opened; a pipe perhaps broken in the laying left with an opening for the escape of gases; no trap, perhaps, under sink or closet, or the bathtub connection with soil pipe below the trap. These defects he finds of everyday occurrence. Such facts as these, and from such authority, should impress us with the magnitude of the evil we have to suppress, as we cannot expect that any of our large cities enjoy any greater immunity from dishonest work, or, charitably speaking, from ignorance of the principles of sanitary security, than New York or Philadelphia, or other well ordered city; and when we learn from Dr. Maypother, of Dublin, that of the one hundred and forty thousand cases of typhoid fever which occur annually in England, of which twenty thousand terminate fatally, which are clearly traceable to defective drainage and sewer gas poisoning—and yet that is but one of a long list of prevailing zymotic diseases—we can see how highly important it is that we, as conservators of public health, should exert our whole influence toward the mitigation, if we cannot to the suppression, of this preventable destruction of human life. In fact, we might indorse the opinion of the

Health Officer of the District of Columbia, who, in speaking of this provision for sanitary inspection, says: "That such a law does not stand prominent upon the pages of the code of every city, is a disgraceful reproach upon the intelligence and civilization of the present age." I would therefore suggest, that as it is expedient that every city or town provided with a system of sewerage should have provision made for the proper inspection, by an expert officer appointed by the State Board of Health, of the plumbing and drainage of all houses and buildings connected with its sewerage, that the Committee on Medical Legislation be requested to take this matter under their consideration, with a view of procuring such legislative action as they may deem necessary to attain the desired result.

Another subject presents itself to my mind to which I am desirous of calling your attention for a few moments, as it is one that is universally forcing itself upon the consideration of the thinking portion of the community, and which I believe may appropriately be taken cognizance of by this Society. I allude to the necessity which exists for the proper provision by the State, of some suitable establishment for the safe custody of insane criminals, and those who, under the plea of insanity, are acquitted of atrocious crime. The increase that has taken place in this class of criminals, not only in this, but in other States of the Union, is apparent to the most casual observer. Whether this is the result of our greater familiarity with the different phases of a diseased brain, and our ability to detect them in their obscurer forms, or from the frequency with which this mental defect is brought before the public, and hence are rendered more familiar with it, or from the facility with which such persons escape from the restraining hand of justice and are allowed to return to liberty after the solemn declaration of their insanity by a jury of their countrymen, it is evident that the means at present provided for their proper care and treatment are inadequate and unsatisfactory. In an address delivered before this Society nearly ten years ago, by that distinguished alienist, and your presiding officer, Dr. G. A. Shurtleff, he clearly discerned then

that the whole question of the trial, custody, and treatment of the criminal insane needed revision. At that time the State was startled, as it has been since, by the committal of atrocious crime which escaped its just punishment upon the plea of insanity. The law was inadequate or defective, which elicited from Dr. Shurtleff the following pertinent remarks. He says:

"There should be a change in our laws respecting the criminal insane. Upon the acquittal of a person charged with murder, on the ground of insanity, the killing being admitted or proven, it should be the duty of the Judge trying the case to commit such insane homicide, regardless of his mental condition at the time of trial, to an asylum for the insane, where he should be securely kept. And there should be no authority vested in any officer of the asylum to discharge patients of this class by reason of their apparent recovery or sanity. Such a provision of law would render the plea of insanity less frequent and the community more secure."

Again:

"The frequency with which the plea of insanity has of late been resorted to, with undeserved success, to avoid responsibility for crime—the irregular, unscientific, and generally unfair manner in which such trials are conducted with regard to medical testimony—the danger of a more unenlightened, misguided, reactionary movement, to the peril of the really insane—the ends of justice and the welfare of society, all seem to call for reform in the law relating to the trial of criminal cases in which the mental condition of the accused is involved."

Under the Penal Code of California, as it stands to-day, the disposition of these cases is as follows. Under Section 1167 it says: "If the jury render a verdict of acquittal on the ground of insanity, the Court may order a jury to be summoned to inquire whether the defendant continues to be insane; and the Court may order him detained in custody until the question of his insanity is determined. If this jury find the defendant is then insane, he shall be committed by the

Sheriff to the State Insane Asylum; but if the jury find the defendant sane, he shall be discharged."

Under Section 1368: "When the case is called, or during the trial, or when defendant is brought up for judgment, or if a doubt arises as to the sanity of the defendant, the Court may order a jury to try the question."

The next section prescribes how he shall be tried. Section 1370 says: "If the jury find the defendant sane, the trial must proceed; if insane, the trial or judgment must be suspended until he become sane, and in the meantime he is committed to the State Insane Asylum, where he is retained until he become sane."

According to the Penal Code, then, a man charged with murder, and being acquitted upon the ground of insanity, is discharged, except he give evidence after his acquittal that he is still insane, when he is again tried upon that question solely, and if the jury do not consider that he is then insane, he is discharged. The result of this law is the attempt of nearly every criminal, charged with murder or other atrocious crime, to escape punishment, upon the plea of temporary or emotional insanity. If he can only succeed in making a jury believe that he was insane at the time of the committal of the crime, his freedom is assured, as the law says he must be discharged. Another jury, if summoned, has only to try the question whether he is then insane, and if it says he is not, he must be discharged. Can we wonder, then, at the number of dreadful murderers who have escaped justice under such a law? The question arises before us to-day, as it did eighty years ago before Lord Kenyon, in the trial of Hatfield—"how are we to dispose of the prisoner? For his own sake," said Lord Kenyon, "and for the sake of society at large, he must not be discharged, for this is a case that concerns every man of every station, from the King upon the throne to the beggar at the gate. People of both sexes and all ages may, in an unfortunate hour, fall a sacrifice to this man who is not under the guidance of sound reason; and, therefore, it is absolutely necessary, for the safety of society, that he shall be properly

disposed of, all mercy and humanity being shown to the unfortunate creature; but, for the sake of the community, he must somehow or other be taken care of with all the attention and all the relief that can be afforded him." This expression of opinion from Lord Kenyon and other jurists led to the provision for the strict confinement of such persons, during his Majesty's pleasure, under what is known as "The Insane Offenders Bill." This bill was rendered necessary, from the fact that the statute law was so defective that it had been found that persons who had committed the most shocking acts, and been acquitted on the ground of being deranged in their intellect, had been again allowed to go at large, and again committed similar atrocities. Under this statute the law was administered until after the trial of Oxford, for shooting at the Queen, when it was found that his case did not come under the meaning of the statute, which necessitated the passing of another Act (3 and 4 Vic., Chap. 54), entitled "An Act for making further provision for the confinement and maintenance of insane prisoners." Under its provisions the Secretary of State is empowered, under certain formalities, to grant a warrant by which any insane person can be removed into safe custody, and under the same Act is authorized, under like restrictions, to grant the release from confinement, or the discharge of such person. Under this warrant a criminal lunatic may, under certain conditions, regain his liberty; but when the royal warrant is issued, it virtually means detention during life. This warrant is issued in all cases of acquittal for murder on the plea of insanity, and in all the higher class of crimes—treason, etc.

It is an axiom in law, admitted by every country, that no man who has committed an offense in an unsound state of mind, shall be held responsible for his conduct. "But," says Mr. Hurlbut, one of the Supreme Judges of the State of New York, "the law having pronounced an act dangerous to society, the offender must be restrained of his liberty, to prevent its repetition. If the issue be found against the prisoner, the judgment of the tribunal should be, that he be lodged in a

safe place of confinement provided by the State for prisoners of this person's description, there to remain under appropriate treatment for his moral and intellectual condition until he be discharged under due course of law." "If the plea of insanity," continues Mr. Hurlbut, "be made out the prisoner is found not guilty, and discharged out of custody. His act may have been a homicide, occasioned by the destructive mania. The disposition to kill may be still as strong as ever, and the jury know it, and the Court trembles when it discharges him, lest he should kill others. This verdict does not imply that he has not slain a fellow being; does not mean that he is a safe man to go at large; on the contrary, by reason of his mania, he is the most dangerous of men. But what the jury mean by a verdict of acquittal is, that he is not a proper subject for punishment." Under such practical observations as these and others, which time will not permit me to quote, the Asylum for Insane Convicts was established at Auburn, New York—the first, and I believe the only separate establishment of the kind in the country. Its admirable workings, and the excellent policy which founded it, are recognized and acknowledged wherever the question of provision for insane criminals has received attention.

In California the prisoner is discharged, or sent, if insane, to one of the State Insane Asylums, where escape is easy, as these institutions are charitable, and not penal, and cannot be so guarded as to render escape impossible. It is well known that an insane criminal, who retains his cunning, is, under the most favorable circumstances, a much more difficult person to guard than one who is sane, and consequently his chances of getting away are increased in proportion; but to the criminal who feigns insanity, the insane asylum offers itself as the safest, easiest, and most certain road to freedom that can present itself. But, waiving all these considerations, the question may be asked: Is it right to send an insane convict, or a person acquitted of murder on the plea of insanity, to our State Insane Asylums? The law says: "When a prisoner is declared

insane, he shall be sent there." Dr. Shurtleff, in his report to the Directors of the State Insane Asylum, for 1873, says:

"There have been, within the period of my superintendency, in all forty-six patients transferred from San Quentin to Stockton. Among them were murderers, highway robbers, burglars, thieves, and the perpetrators of other atrocious crimes. Some of them, in their physical outlines, no less than by their vicious lives, illustrate a brutalized degeneracy reached only through a long course of ancestral debasement. They are generally familiar with all the low slang, mischievous acts, and common vices usually prevalent in the haunts of criminals. Mental disease does not deprive them of these bad attainments, nor wholly destroy their natural characteristics. It seldom changes them for the better, or renders their influence other than pernicious. The murderer, becoming insane, is more disposed to homicidal violence than is the good law-abiding citizen with the same mental affection. So the insane thief is more likely to steal than the patient who, before his insanity, had respected the rights and property of others; and the burglar, unless stupid from dementia, or a purposeless maniac, is almost certain to contrive the means of picking locks, and of making his escape from the asylum. He is also very likely to teach others his troublesome art. In spite of the closest confinement and the best security consistent with asylum discipline, twenty-five per cent of our convict patients have escaped. The influence of this class of patients upon others is incalculably bad in every respect. But," continues Dr. Shurtleff, "by this incompatible mixture a still greater wrong is done to the other inmates socially. By compulsion, and without fault of their own, they are made the associates of convicted felons. We must not suppose the insane are stolid and indifferent as to their moral and social position; on the contrary, they are frequently rendered more acutely sensitive to every apparent disrespect or derogation. Indeed, I question the moral right, though the Legislature has arbitrarily established the legal one, to force upon the society of the honorable and upright, who are secluded from the public by the misfor-

tune of sickness, the convicted felon who has been excluded from the general society of his fellow-beings solely on account of his crimes. To do so is to tantalize misfortune and add a needless shame to affliction."

Dr. Dewey, Physician to the Illinois State Insane Asylum, speaking of the unfitness of insane criminals for association with the insane who are free from crime, after enumerating the crimes of those placed under his charge, says:

"Is not the moral infection of such as these in the asylum as much to be dreaded as any physical infection? If one sickly sheep can infect the flock, how much pestilence will these moral lepers bring with them? Are not the misfortunes of the insane already sufficient, without subjecting them to this further degradation? Is it possible to suppose that the people of any community or State into whose families the ominous specter of insanity sooner or later stalks, wish the afflicted ones to dwell familiarly with such companions? Insanity but seldom renders its victims better than before, in any respect; more generally, indeed, it adds darker and more repulsive features to the character. They are more prone than the rest of the insane to commit dangerous and violent acts; to be concocting plans of escape, rebellion, or mutiny; to torment the feeble and irascible about them; to teach new lessons in depravity to the pupils so easily found around them."

From these extracts, which might be multiplied, from the experiences of every physician in attendance upon an insane asylum, we can partially learn how wrong, how unjust, and how unfit it is to send these criminals, made worse by reason of their insanity, to our State Insane Asylums. They cannot be separated from other insane patients, as our asylums are not constructed for that purpose, and they cannot be locked up in their rooms, as that is just what they are sent to the asylum to escape, because it is unjust and inhuman, and would destroy every hope of recovery. The asylum has no machinery, and should need none, such as is required for the safe keeping of this class.

That our State Prison, as at present constituted, is not a proper place for the custody or confinement of these unfortunates, is conclusively shown in the report of Dr. Pelham, formerly Physician to the Prison at San Quentin; in his report for 1877 he says: "The prison is destitute of proper accommodation for the insane. * * * At present they are confined in cells in the main cell building, and are not separated from the other prisoners except by cell walls, and they often render night hideous by their ravings, thus disturbing the sleep of others, and those who must labor during the day. To avoid this state of affairs, there is at present but one remedy —the dungeon—which has frequently to be used for this purpose. With the present accommodations for the treatment of such cases, results are unsatisfactory and remedial measures cannot be resorted to with reasonable prospect of success."

From this extract we may learn that no proper place exists in our prison for the care or treatment of these insane criminals. It is not right or just to keep a noisy maniac within the wards of an hospital among cases of sickness where absolute quiet is required; neither ought the nineteenth century civilization permit the thrusting of a raving maniac within the walls of a dark and noisome dungeon, deprived of light and wholesome air, perhaps chained to its damp and reeking floor, to preserve from harm its other and more sane inmates. The only remedy presented to us to obviate this manifest and glaring wrong to our fellow-beings, who, although insane, are not criminal, and to those who are both criminal and insane, is a separate and special provision for the care and custody of the criminal insane, and this in the erection by the State of a suitable asylum, constituted and adapted to this special purpose, since the inmates intended for its occupancy, although insane, are still dangerous outlaws and criminals, retaining for the most part all their criminal characteristics and vicious proclivities. More especially is this required from the want of adequate room for the proper care of the ordinarily insane,

our asylums now being filled far beyond their sanitary capacity. It is the opinion of those who are interested in the welfare of the insane, and have written upon the subject, that the preferable location for such an asylum would be within the precincts of our State prisons, and not in connection with hospitals or asylums for the ordinarily insane. At Folsom, within our prison grounds, is an admirable location for such an asylum; there is plenty of room, a genial climate, a generous soil that would afford plenty of occupation in cultivating and adorning it. Its construction might be accomplished at a minimum cost by utilizing prison labor; the material is right on the ground, and its medical management might safely be intrusted to the medical officer of the prison. Within its walls should be confined, for life, all those dangerous homicides who are acquitted upon the plea of insanity, and also all those who offer the same defense for other equally atrocious crimes. All those who become insane after their arrest and before their trial, should also be committed to this asylum, as well as those who become mentally deranged after trial and conviction, or who are serving out their term of punishment. This would at once relieve our State insane asylums of this very undesirable class of patients, and of their over-crowded condition, and release our prisons from the necessity of keeping insane convicts locked in their cells or thrust into dungeons, to the disgrace of our civilization.

The Penal Code should be so amended that upon the trial of any person for murder or other capital offense, and his insanity at the time of committing the offense is given in evidence, as a plea against punishment, and the jury acquit him, the jury ought to be required to find *specially* whether he was insane at the time of the commission of the offense, and declare whether he was acquitted on account of such insanity; and if the jury find that he was, and was acquitted on those grounds, then the Court should have no other alternative than that of committing the defendant to the asylum for the criminal insane for the term of his natural life, regardless of his

mental condition at the time of rendering the verdict. For the sufficient reason, that no guarantee can be offered or accepted, by the prisoner or his friends, that a recurrence of his emotional, impulsive, inspirational, moral, or temporary, or any other insanity upon which he may have been acquitted, will not take place at any moment thereafter, to the danger of the community or the life of an individual. If the plea were true, the prisoner is certainly one of the most dangerous of men to be at large; and if false, and only used by the defense with legal ingenuity, as a means of swaying the minds of a susceptible jury, the punishment of incarceration for life would be no greater than such a criminal would deserve. Such a change in the organic law would at once put a stop to those travesties of justice we have so often, and so lately, witnessed in our Courts of law, and prevent the plea of insanity from being used to defend, or cover up, some of the most revolting and atrocious crimes that have ever disgraced the annals of the State.

The provisions of those sections of our Civil Code respecting the examination of persons alleged to be insane before juries, and assisted by counsel, should be amended or repealed, and also the mode of medical examination by hypothetical questions, it being impossible for the medical witness to fairly present his opinion to the Court and jury by this mode of putting questions. The principle by which medical experts are compelled to attend Courts of law without adequate compensation is unjust and unfair; the physician's special knowledge being his private property, which, if taken from him by the State, ought to be paid for. This subject demands investigation and a legal remedy by the Legislature.

Superior Judges should be empowered to allow such extra compensation to medical experts summoned in criminal cases as in their judgment would be adequate and just; to fix the amount, and order it paid out of the funds of the County Treasury. Judges only should have the power of appointing medical experts; or better still, medical experts should be

officers of the Government, as are the Judges whom they assist. Their appointment should be permanent to secure impartiality, they should be rigidly examined to secure their competency, and they should be well paid to secure the ability necessary to the office. Thus only will experts be had whose views are not pre-ascertained in favor of prosecution or defense, and we spared the humiliation of seeing brought into Court two sets of witnesses, each impliedly under contract to render his best services in the interest of the party by whom he is paid, or through the influence of personal friends or professional bias. There are some other reforms in the medico-legal jurisprudence of this State which might be inaugurated with great propriety and justice, and in strict consonance with the civilization of the present century; time will not, however, permit me to bring them before you upon this occasion. I would therefore respectfully recommend that the Committee on Medical Legislation be requested to take this whole subject matter under its consideration, with a view of obtaining such legislative action as will result in the establishment of a suitable asylum in this State for the medical care and proper custody of its criminal insane; also, procure such amendments to our Penal Code, that an acquittal for murder by a jury on the plea of insanity, temporary or otherwise, will not mean a discharge from custody and a return to freedom, but will insure the proper security and care of the maniac, and the safety of the community, together with such other alterations, amendments, and revisions of our Codes, both Civil and Penal, that will hereafter place the profession of medicine in a position worthy of its high calling in Courts of law.

During the past year I regret to say that the dread destroyer death has not passed us by. We have to mourn the loss of the young and zealous Matson, who, in the morning of life, was removed from among us. We will also miss the kindly smile and genial welcome of our old and honored member, Wm. Bamford, whose interest in the welfare of this Society never wavered, and whose words of wisdom we cannot

forget. Let us cherish their memory, and while we throw the mantle of charity over their faults, if any they had, let us try and emulate the many good, noble, and manly qualities which were common to both.

I cannot close this address without congratulating the Society upon the success which has marked its efforts for the elevation of the medical profession upon this coast. Its proceedings have reflected the highest credit upon its members and placed our young Society far in advance of many of its elder and more pretentious sisters in other States. Let us not be weary in well-doing; continue the good work, and by advancing the cause of scientific medicine, scatter and disperse the misty clouds of ignorance, superstition, and darkness which everywhere surround us, and bring into the full light of day to be seen of all men, the glorious fact, that reason is our guide; that truth, honesty, observation, and experience, combined with knowledge, are the powers by which alone we combat disease, disarm the pallid hand of death, give victory to science, and health to our fellow-men.

SACRAMENTO, April 19, 1882.

REPORT ON PRACTICAL MEDICINE.

BY W. S. THORNE, M. D., CHAIRMAN.

MR. PRESIDENT, AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: When we reflect that the present annual product of medical literature reaches the enormous total of one thousand five hundred volumes, and two thousand five hundred pamphlets, we perceive how impracticable is the attempt to present you, in the limit of this essay, with even the most compendious retrospect of the medical history of the past year. And when we reflect, upon the other hand, how few discoveries—indeed almost none—are made by one man alone, we shall realize the hazard, if not the presumption, of one who would claim the right to speak only of his own observations. In view of these facts, I shall pursue the course so ably, and I think so appropriately, inaugurated by my predecessor of last year. With him, I believe that every sound advance in practical medicine must be laid in a better understanding of the source of diseases, the character of contagion, and the way in which it affects function and structure. The true science of medicine, when it shall be properly so called, will be founded in a larger development of these studies. All knowledge that falls short of this exactitude is empirical, and we may only regard ourselves as the exponents of a true system of medicine as we pass out of the empirical into the scientific method of dealing with disease. It would appear that the certain and speedy restoration of our patients to health left nothing more to be desired of practical medicine. Reputation, self interest, and the bias of public opinion strongly impel us to pursue those studies that lead directly to

the cure of disease. But there are questions that in a broader and more general sense are vastly more important to humanity than the mere cure of the sick—questions that, if solved, would render therapeutics, in the narrower sense, superfluous, and that would resolve the problem of treatment into one of hygiene and prophylaxis. Doubting the propriety, either at this time, or in this place, of indulging in purely theoretical speculations, I may be permitted to say that the present nosological arrangement is becoming more and more unsatisfactory, and that the etiological grouping of diseases appears to be an ideal that may never be realized; but, as I understand it, the arrangement of diseases, based upon their several causes, is the highest aspiration of scientific medicine. When the railway between Moscow and St. Petersburg was contemplated, the engineers disputed the feasibility of the proposed routes, when the Emperor, seizing the map of Russia, drew a straight line between the two cities, declaring that along this line the road should be built. But in medicine there are no imperial autocrats thus competent to declare that distant points within its domain shall be speedily united by straight lines. The routes which we must follow are subject to no deflection by authority. The facts with which we deal are inflexible, and the test of our knowledge is the success with which we observe and interpret the order of nature. As we advance to higher generalizations and abstractions, so shall we pass from art to science. In the present state of our knowledge, practical medicine involves rather the discussion of an art, than of a science. We are still observing, comparing, and classifying. We cannot proceed to generalize until our facts are correlated, and their mutual relation shown. Absolute truth in the form of rigidly stated propositions can rarely be laid down in medicine. But Professor Huxley assures us "that with the progress of science, medicine will attain to the greatest scientific precision; and that sooner or later the physician will possess the means of affecting in any desired sense the functions of any physiological element of the body. It will, in short, be-

come possible to introduce into the economy a molecular mechanism which, like a very cunningly contrived torpedo, shall find its way into some particular group of living elements, and cause an explosion among them, leaving the rest untouched." Let us hope that the same scientific precision will enable the physician of the future to attack with equal effect destructive elements exterior to the economy, as well as within it. And, looking towards an increased knowledge of the essential causes underlying morbid processes, we may reasonably hope to prevent those disorders that we may not cure.

I shall offer no excuse for leaving the subject of Therapy almost wholly to the learned gentlemen who will follow me, and whose experience will add weight to opinion and give to observation the force of authority. The remarkable effect of salicylic acid, or the salicine compounds, upon

ACUTE RHEUMATISM,

And the almost equal utility of the drug in diabetes mellitus, has suggested a pathological relationship between these diseases that hitherto has escaped very general recognition. The report of Dr. Hilton Fagge, on the use of the salicylates in acute rheumatism, at Guy's Hospital, from 1876 to 1880, including a critical analysis of three hundred cases, would seem to settle affirmatively the only real questions now at issue respecting the superior utility of salicine compounds in the treatment of acute rheumatism. Its use in the treatment of diabetes mellitus has been attended by gratifying results. Ringer says that salicylate of soda cures glycosuria when all other remedies fail. Dr. Charles Kaufmann, of Frankfort, has successfully treated diabetes mellitus with gramme doses of salicylate of soda. Erbstein and Julius Muller report cases of glycosuria cured by salicylate of soda after prolonged trials of various drugs. During the past year I have reduced the daily excretion of sugar in a diabetic patient from 5½ ounces (2,640 grains) to 232 grains, by the administration of gramme doses

of salicylate of soda, the urine meanwhile falling from 128 to 56 ounces.' The result of this remedy, so strikingly beneficial in both rheumatism and glycosuria, has led to inquiries respecting the origin and relationship of lactic acid and glucose in the human economy. The most recent views on this subject are advanced by Dr. Latham, of Cambridge. He holds that experiments, notably those of Professor Foster, prove that there exists in the economy a so-called co-ordinating chemical center, which restrains chemical action, and regulates the production of heat. The fixing of oxygen, and the exhalation of carbonic acid gas, must be regulated by this or some other nervous mechanism, in the same way as the blood is prevented from coagulating in the vessels, or the stomach from digesting itself. Any disturbance of this co-ordinating chemical center, from cold or other shock, whereby its regulating actions might be weakened, would interfere with the absorption of oxygen and the giving out of carbonic acid by the muscles. Intermediate changes would take place, the tissues would oxidize more vigorously—would, in a manner, disintegrate; and the result of this action, as is seen in *dead muscle*, in the laboratory, is the formation of lactic acid. This acid, it is further shown, may be derived directly from glycogen. Glycogen we know is found, under abnormal conditions, in the muscles, and by hydration it may be converted into glucose, and then into lactic acid. Whatever be the source of lactic acid, whether from glycogen, or from some as yet undetermined compound, its formation is believed to take place in the muscles, as they pass from a state of health to one of disintegration. The first change in dead muscle is from an alkaline reaction to an acid one. The acid so formed is lactic acid, and in the living tissues its formation is believed to be possible only through a disconnection with the inhibitory or co-ordinating chemical center. The effect upon temperature and increased oxydation of even so small a quantity of lactic acid in the blood as one part in a thousand, is well known by the experiments of Gaskill, Foster, and others. Dr. Latham further argues that

when the blood is alkaline, or of normal reaction, the urea formed in the muscles and liver passes, by intermolecular changes, to the kidneys, and the glycogen is transformed, by hydration in the liver, into glucose, then into alcohol, carbonic acid, and water, the carbonic acid at once entering the blood, and the alcohol appearing in the tissues, to be further oxidized into carbonic acid and water. But if the blood is in an abnormal condition, the interchange of the molecular elements may be modified, and the alkaline reaction of blood becomes, like muscle, changed, when the power of the co-ordinating center is suspended, as shown in the process of coagulation. The glycogen may then be hydrated in the liver, and as the result of the variation in the molecular interchange in the blood, it may appear in the tissues, either as glucose or as lactic acid. From the foregoing views, we may summarize as follows: That in a state of health, glycogen and glucose are abnormal constituents of muscle. The glycogen which is formed in the liver appears in the tissues as alcohol, to be at once transformed into carbonic acid and water; but if the controlling chemical center is weakened, glycogen is transformed, and appears in the tissues as glucose, or lactic acid, according to the extent to which that power is weakened. These interesting views as to the common origin of glucose and lactic acid, appear to be sustained by the so-called sugar puncture of Claude Bernard, which consists, as is well known, in wounding very delicately, with the point of a needle, the floor of the fossa rhomboidea, in the fourth ventricle, immediately above the origin of the vagi nerves. "When this puncture is made in the center of the space between the origins of the auditory and pneumogastric nerves, there is produced an increase of the saccharine and renal secretion; if the puncture is made a little higher up, there is only an increase in the quantity of the urine, which frequently becomes charged with albuminous matters, while, if the puncture be still below, the discharge of sugar is alone observed, and the urine remains turbid and scanty." A great number of experiments, since Claude Ber-

nard's time, have been undertaken for the artificial production of mellituria. Almost every accessible nerve and ganglion in the body has been severed or irritated, including the crura cerebri and cerebelli, the pons, the spinal cord, and the nerve-connection of the liver itself. The results are not uniform in every particular, but this much may be deduced from them: That injuries of the medulla oblongata of the lowermost cervical and uppermost thoracic ganglia, and of certain connecting filaments of the two, give rise to diabetes mellitus. This, then, in the present state of our knowledge, is as near as we can locate that nerve tract, which we have many reasons for believing presides over the fixing of oxygen in the tissues, and the liberation of carbonic acid, and whose varying energy may give rise to a pathological relationship between diabetes mellitus and acute rheumatism. Salicylic acid, when taken into the stomach, is believed to pass directly by the portal vein into the liver. There it enters into chemical combination with substances about to be hydrated. Among these substances are glycogen and alloxan, which are the antecedents of lactic acid and glucose. Salicylic acid, according to Dr. Latham, combining with the latter products, passes through a complex series of æthers and acids, to be finally eliminated, partly as salicylic, and partly as salicyluric acid. Whether the theory of Dr. Latham respecting the combination of salicylic acid with alloxan and glycogen, the antecedents of glucose and lactic acid, be sustained by further investigations or not, the fact remains that salicylic acid in acute rheumatism does not act as an antipyretic merely, for, if it did, reduction of temperature might be more effectually induced by the internal administration of quinine and the application of cold. It must act, therefore, in some way, by preventing the formation of the rheumatic poison or its antecedents, or by entering into combination with it after it is formed. The relation of derangements of the vaso-motor mechanism of the liver and diabetes mellitus has been the subject of a recent series of investigations by M. Laffont, of

Paris. The conclusions drawn from these experiments confirm the view that the glycosuria which results from irritation of the central extremities of the pneumogastric or sensory nerves generally, is the result of an impression conveyed to the bulbar vaso-dilator center, the path from which is by the cervical cord, the first dorsal nerve roots, and the sympathetic and splanchnic nerves. These experiments of M. Laffont confirm, also, the opinion of Pavy, as to the dilatation of the blood vessels in the liver in diabetes.

PULMONARY PHTHISIS BY CONTAGION.

In the report of your Chairman on Practical Medicine, last year, some very interesting data relating to the pathogeny, frequency, and contagiousness of pulmonary phthisis, were laid before you. Perhaps in the entire field of pathological inquiry there is no subject more deserving of special attention than is the transmission of pulmonary phthisis by contagion. The clinical study of tuberculosis appears in the main to oppose the view that it is contagious, while theory and experiment appear to favor it. Out of six hundred and seventy cases recorded by Dr. Flint, only five show the possibility of the disease being communicated, and he thence concludes that this analysis does not "furnish facts sufficient to render the communicability of phthisis probable." Dr. Reginald Thompson finds fifteen well marked examples of infective phthisis in a record of fifteen thousand cases, and he therefore concludes that "it is easy to understand why observers with a limited number of cases disbelieve the possibility of contagion." Dr. McAldowie, of the North Staffordshire Infirmary, reports that during the past four years he has been making observations on over four hundred patients suffering from phthisis, and on several hundred others attending as out-patients, and on those occurring in private practice, for the purpose of detecting cases in which it was probable that the disease had originated from infection. In this large number of cases he has been able to find four examples where the wife, previously healthy,

and with no family history of tubercular disease, became affected whilst attending to her phthisical husband. The ages of the patients in the four cases varied from thirty to forty-four years, and all suffered from the tubercular form of the disease. Owing to a frequent impossibility of obtaining a perfectly reliable history of the patients' antecedents, and the inevitable errors that must occur in even the most scrupulous analyses, we readily perceive that a ratio of probable contagion, amounting to a little upwards of nine tenths of one per cent in an analysis of two thousand five hundred and seventy cases of tuberculosis will fail to elicit unqualified acceptance that phthisis must be regarded as a contagious disease. That animals are readily rendered tuberculous by the *forcible* inhalation of tuberculous spray, appears no longer to admit of doubt. And the fact that tuberculosis is communicable by the inoculation of healthy animals, seems to be established by the researches of Wilson, Fox, Burdon-Sanderson, Flemming, and others. That bovine tuberculosis may be and is communicated to man by the milk or flesh of infected animals, is a growing, if not a settled conviction. That tuberculosis of the abdominal viscera may and often does originate from germs introduced into the alimentary canal (as are cholera and typhoid), is admitted by many excellent observers; but that tuberculosis proper is communicated through the medium of contaminated air, in the ordinary intercourse with infected persons, is feebly sustained by recent clinical experience. If it is admitted that tuberculosis is communicable from a diseased to a healthy subject, there must be some special action whereby the system so generally escapes infection in the ordinary intercourse with diseased persons, but which is unable to resist infection resulting from the forcible inhalation of tuberculous spray. The reasons offered in explanation of this fact are purely anatomical. The air, in ordinary respiration, passes through the various ramifications of the bronchi before it reaches the alveoli of the lungs. These tubes are lined with mucous membrane, the surface of which is covered by an epi-

thelial layer of ciliated cells. These cells are constantly moistened with mucus secreted by the mucous glands found in the interstices of the cartilages, and on the inner side of the cartilaginous plates of the trachea and bronchi, so that when the air finally reaches the alveoli it may be supposed, according to Professor Lister, to have been filtered of all extraneous matters; and the germs or particles so arrested may then be thrown off by expectoration. The stomach, it is alleged, is protected by the acid property of its secretion, and the œsophagus by the frequent passage of solids and fluids. When inhaled particles of septic matter escape the filtering action of the bronchial cilia and reache the alveoli, they find, we are told, a situation peculiarly favorable to absorption. This peculiar absorbing power of the air cells in removing inflammatory products, is an event confirmed by daily experience. This power, pathologists tell us, is due to the fact that in the alveoli the cell-walls are covered with flat non-ciliated epithelium, and that the lymph vessels in this locality are open spaces or channels in the connective tissue walls, and are alike destitute of proper coats and epithelial lining. It would appear, then, that the alveoli are the parts of the respiratory organs most liable to the ready absorption of inhaled germs. Pathological observation appears to sustain this view, for Rindfleisch and others state that the first lesion in pulmonary phthisis takes place in those alveoli immediately surrounding the smallest bronchial tubes; but since this condition, according to pathologists, is constantly found in all forms of pulmonary phthisis, it appears, after all, but a feeble argument in favor of the doctrine of infection. An important contribution to the pathology of tubercle has been made by Dr. Martin, of Paris, during the past year. This gentleman sought to determine the solution of two questions by a series of inoculations of indifferent substances, and of tubercular matter—first, to ascertain if there exists any distinction in the histological structure of tubercles resulting from the inoculation with indifferent foreign bodies and those obtained with tubercular matter; and

second, whether or not the pseudo-tubercule is infectious by inoculation. He found the pseudo-tubercular eruption, resulting from inoculation with indifferent substances, to in no way differ in its anatomical arrangement from those bodies found in genuine tuberculosis, and that while the inoculation of tuberculous matter acquired additional virulence with every repetition upon a new animal, the inoculation with pseudo-tubercle produced in the second animal scarcely a lesion, and in the third no effect at all. In no case did any general symptoms manifest themselves, nor did the neighboring vessels and lymph glands show any tendency to inflammation or tubercular changes. It appears, therefore, that there are at least two varieties of tubercular bodies, and which, though anatomically identical, are totally different in specific properties. From a series of experiments on tuberculosis during the past year, Dr. C. Robinson concludes that "tuberculosis, artificially produced in animals, is not due to a specific virus, but the introduction, under the skin, of any foreign substance capable of exciting an inflammation, or any traumatic injury, can produce tuberculosis, provided the animal is of scrofulous habit, and that the tubercles so produced in animals are strictly identical with those occurring in man. From the latest experimental researches, then, upon this subject, it is fair to conclude that tuberculosis in man may be often of dual variety: the one form resulting from injury or inflammation in a person of scrofulous habit, and extending the analogy non-infectious by inoculation or inhalation; the other, a specific disease arising independently of any known inflammatory or traumatic lesion, and which may be transmitted by inoculation, and possibly by infection. Investigation during the past year upon the micro-organisms found in tubercular matter, which Klebs and Schuller believed to be the active agents in the infection of tuberculosis, have not been favorable to the mycotic origin of the disease. Tubercular pus, from the human subject, if allowed to stand in a closed

vessel, separates into two layers. The upper layer is a clear, yellowish serum, and the lower consists of a thick pus. The first layer is free from pus, but it contains a great number of small bodies in vigorous motion. These bodies, Klebs and Schuller maintained, were characteristic of tuberculosis, and constituted the *materiex morbi* of the disease. Professor Deutschmann has recently, in repeated experiments, injected the fluid containing these micro-germs into the eyes and tissues of various animals, without specific effect, while the lower layer, which is free from these bodies, but contains pus cells, invariably produced tubercular manifestations. From these experiments Professor Deutschmann concludes: 1. That micro-germs have nothing to do with tubercular infection; and, 2. That micrococci serve only as the vehicles of the tubercular infection when they can germinate in a suitable soil, such as is furnished by the tubercular pus, and that when not so placed, they have no pathogenic action. These experiments, if found invariable, would seem to effectually dispose of the mycotic theory of tubercular infection. Notwithstanding the formidable array of clinical facts that oppose the infective theory of phthisis, there is a growing conviction that this disease is communicable to persons in close attendance upon the sick. But the difficulty of eliminating, in these cases, inherited or acquired tendencies, and the further difficulty of differentiating pseudo-tubercle from the so-called infecting tubercle, leaves the question of infection but little advanced since the days of Laennec and Andral. But in the present state of our knowledge we may agree with them, that caution and cleanliness are very desirable upon the part of those who have the care of the sick.

The experimental evidence of Dr. C. Robinson, that, under favorable conditions of nutrition, tubercle in animals may undergo a higher organization, being converted into small, harmless fibromata, would seem to suggest at once a rational prophylaxis and treatment of tubercular disease. The method

proposed and so successfully practiced by Dr. Weir Mitchell, in the treatment of neurasthenia, suggests, upon theoretical grounds, its utility in phthisis. The two classes of cases have much that is common to both. In both there is impoverishment of the blood, wasting of the fatty tissues, marked dyspepsia, faulty nutrition, and disturbance of the bodily functions generally. The result of Dr. Mitchell's treatment of this heretofore almost incurable class of invalids, is truly wonderful, and marks a most interesting and remarkable advance in rational medicine. The system pursued is hygienic, with forced alimentation. An idea of the capacity to take food of these dyspeptic, bedridden, anæmic, and wasted patients, may be gathered by the following dietary prescribed for and taken by a patient who, ten days before, took a little milk three times a day: "6 A. M., ten ounces of raw-meat soup; 7 A. M., cup of black coffee; 8 A. M., plate of oatmeal porridge, with a gill of cream, a boiled egg, three slices of bread and butter, and cocoa; 11 A. M., ten ounces of milk; 2 P. M., half pound of rump steak, potatoes, cauliflower and savory omelette, and ten ounces of milk; 4 P. M., ten ounces of milk and three slices of bread and butter; 6 P. M., a cup of gravy soup; 8 P. M., a fried sole, three large slices of roast mutton, French beans, potatoes, stewed fruit and cream, and ten ounces of milk; 11 P. M., ten ounces of raw-meat soup." This robust diet is not, we are assured, exceptional, in the management of these cases. It can be continued for weeks—causes usually no dyspeptic symptoms, and is consumed with relish. The unexampled results of this extraordinary feeding would lead us to hope that some kindred method of forced alimentation massage and improved hygienic management might prevent the catastrophe of retrograde changes in tubercular deposits, or even arrest such changes when once they have begun. The new method of supplementary alimentation, as practiced by Dr. Andrew Smith, of St. Luke's Hospital, New York, appears worthy of extended trial in phthisis. This gentleman has made some interesting observations upon the absorbing power of the rec-

tum. He shows that the action of the blood is not limited to the small surface where the injection is first deposited, and that by a retrograde peristalsis it is carried up the bowel two feet or more. Ox blood is usually employed. It is defibrinated the moment it is drawn, and should not be kept longer than twenty-four hours. In recent cases, where there is little or no stomach digestion, two or three ounces of defibrinated blood are to be injected every two or three hours. As supplementary to stomach alimentation, it is administered in larger quantities, less frequently. Dr. Smith finds that when defibrinated blood is given by enema, both serum and corpuscles disappear. Its advantages are cheapness and ready supply. It has been used with marked success in gastric ulcer, extreme irritability of the stomach, uterine hemorrhage, and diphtheritic paralysis, where starvation was imminent.

The relation of micro-organisms with certain specific diseases, and the control of contagion by the artificial attenuation of the virulent elements that give rise to them, continues to excite renewed interest among eminent observers in all countries. Within the past year, ingenious experiments have been devised with the view to determine if the virus of contagious diseases is to be found in living microscopic germs of specific character. Second, to determine the effect of inoculating healthy animals with morbid virus modified by artificial culture outside the body. Third, to learn more of the origin and life-history of pathogenic bacteria. The results of these experiments are in the main harmonious, and accord with the well known views of Pasteur, Lister, Klebs, Sanderson, and Greenfield, that the active agents of many contagious diseases, both of men and animals, are special organisms of great minuteness. The most conclusive evidence respecting the specificity of the various forms of organisms found in diseased processes, is furnished by the late experiments of Dr. Koch. Bacteria, found associated with a particular disease, were cultivated at leisure upon a firm gelatine substance. By studying their mode of growth and physiological action, differences

could be made out between forms which were microscopically indistinguishable. Under these artificial conditions the organisms retained their forms and properties, and when inoculated into healthy animals, invariably produced the same disease as the one with which they were originally associated. Pasteur, Roux, Chamberlain, Klebs, Koch, Lister, Sanderson, and a long list of scientists, are convinced that cattle plague or anthrax depends on the entrance and development in the body of the specific micrococcus pestis bovinæ, which is distinguished from all other known organisms of the same nature by its considerable size, and by a special mode of growth. They furthermore show, by careful experiments, that the deadly virulence of this micrococcus may be so modified by artificial cultivation that, when introduced into a healthy living animal, it will produce effects of a passing character, and that the animals thus inoculated subsequently resist infection from the most deadly virus or from exposure to the disease. In a word, the animals are successfully vaccinated. Respecting the origin of pathogenic germs, it is believed that they do not arise spontaneously. Their life history develops some interesting features. In the process of cultivation they in part resemble animal life, in so far as they take up all the oxygen from the air. In the process of artificial culture, some varieties of bacteria lose their original form and resolve themselves into spores, which bear the same relation to the bacterium that a bud does to the seed. These spores are capable of remaining a long time inactive, of retaining their virulent properties, and, under favorable circumstances, of again returning to the bacterial form. The duration of virulent properties in pathogenic germs is shown by an instructive experiment of Professor Pasteur. The bacteria found in pits where animals had been buried twelve years before, which had died of anthrax, were introduced into the blood of healthy animals. These died of rapidly fatal forms of the disease. It was likewise shown that the anthracoid germs from these pits were conveyed to the surface by earth-worms, where they are liable to infect the animals who swallow them.

Another interesting vital phenomenon of germ-history, is found in the fact that organisms rendered inert by artificial culture as to certain animals, may be restored to their original virulence by the successive inoculation of animals differing in species. The results of these experiments conducted by the most eminent biologists, warrant the illustrious Pasteur in stating before the late International Medical Congress, that "new and important principles had been thus introduced into science concerning the contagious quality of transmissible diseases," and to express the hope "that in this line of investigation, the vaccine of all virulent diseases may be ultimately discovered." Professor Greenfield, of Edinburgh, summarizes the results of his admirable experiments and extensive observations upon the germ theory of infectious diseases in the following conclusions: "Organisms may be inoffensive to man, or to this or that animal, but it is quite possible that in some of the thousand species of animal beings, the same organism may produce disease. Their virulence, reinforced by passing successively through many individuals of this species, may become capable of affecting other animals, and even man. Thus a new virus and a new contagium may arise. It is possible that such has been the origin of many contagious diseases, as smallpox, syphilis, plague, yellow fever, and diphtheria." Pasteur concludes that since we possess the knowledge of preparing a vaccine virus against several contagious diseases, under the influence of a universal cosmic force—the oxygen of the air—and since it is known that micro-germs are the active agent of contagium, whose virulent activity is increased by passing successively through different animals; and since it is known that morbid germs are conveyed by animals to man, and by worms and insects to animals—that we are probably in the presence of a general law which is alike applicable to the etiology and prophylaxis of diseases. Such are the inferences which the leaders in germ contagium draw from their discoveries; discoveries that acquire new lustre by the success which has attended the artificial attenuation of

morbid virus, and its employment on a large scale as a prophylaxis against infectious diseases of cattle and sheep. For us these discoveries are of increasing interest, since we are beginning to learn that in respect to the endemic and infectious diseases of animals, we stand upon common ground with them, and that by a study of their diseases under similar conditions, we may hope to throw much light upon the more complex affections of man.

The belief that the cause of epidemic disease is to be found in the physical accidents of earth, air and water, was held by the father of medicine. The learned Sydenham, in his remarks upon the great plague of London, in the years 1662-4, expresses the opinion that epidemics are due to the insensible properties of contaminated air. Since his time, this conviction has gradually assumed more definite proportions. It has long been held that the seed, or contagium of infectious diseases, must be a physical something, infinitely small, light—capable of floating in the air—remaining long dormant, and when taken into the body under favorable conditions of environment, of increasing many thousand fold. Thus ancient and modern explanations of the commonly observed phenomena of infectious diseases appear in the light of recent investigations somewhat like prophecies which the germ theory interprets and verifies. It is true that we may not regard this hypothesis of zymotic infection as proven. "There is much yet to learn, a great deal to be made plane, and conflicting opinions to harmonize," but the discoveries of the past, warrant the belief that future advances will greatly augment our knowledge of contagion and the means of controlling it. The hope of advancement in scientific therapeutics is not in polypharmacy, or in the ingenious application of remedies by skilled therapeutists, it is to be sought rather in the source of diseases, the causes which underlie morbid processes, their mode of development, and the way which they affect function and structure. This plainly is the work that is before us; such are the problems that await solution. Germ pathology

promises light upon these most obscure and difficult of human inquiries; it promises to tell us whether contagium is one and protean, or multiple and specific; it promises to explain why diseases of one type appear to reproduce diseases of another type, and why diseases of different types appear to result from a common cause. And finally it offers us the hope that at no distant day we may possess a vaccine for many, if not all, of the contagious diseases.

INFANTILE MORTALITY AND ITS PREVENTION.

BY A. B. STOUT, M. D.

[A SUPPLEMENTAL REPORT ON PRACTICAL MEDICINE.]

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: No question in vital statistics presents more practical importance, invites to more careful study, or appeals more intimately to human sympathy and love, than does the subject of the terrible mortality of infant life.

During the last year this decimation in San Francisco has been greatly aggravated. The increased loss of life recorded in a twelve month of remarkably mild weather indicates local causes of an extraordinary character. If these causes are referable to human agencies, then should their effects be subject to human resources for prevention.

PREVENTION.

Prevention is more important than philosophy.

The narrow limit allowed to a contribution to this Report restricts, necessarily, to a brief enumeration of causes. All students in zoology know that the destruction of animal life in its earliest evolution is enormous. This fact is not owing to strictly natural conditions of life; nor to want of parental devotion; nor to failure of sources of nutrition; but very greatly to the predatory organization of the animal creation. The civilization of man rises superior to this zoological condition, corrects its evils, defends evolution, and prevents this destructive decimation.

Infant life, like all social life, depends for its healthful existence upon the intellectual and physical discipline maintained in the *family*. Home discipline is the axletree of infantile life. On it depends its healthful, progressive development, or its fatal record in vital statistics. Then, with all possible brevity, we may divide these conditions in the family on which revolve the fate of the incoming progeny, into:

1. The *extrinsic* causes of infantile mortality.

2. The *intrinsic* causes for which the family is itself responsible.

This division shares the dilemma upon which the family may depend itself, and secondly upon the outside aid it may reasonably invoke.

I. EXTRINSIC CAUSES.

All family precautions are vain and void before certain climatic conditions; herein is home discipline innocent of the cause of death. This responsibility must be divided between unavoidable meteorological effects and municipal sumptuary laws.

The vicissitudes of seasons, the evolution and dispersion of germ growths, the emanations of putrefactive decompositions in the course of nature's universal processes, no man may [illegible] control. For their repression and mitigation by [illegible] and is [illegible]

evaded. As an instructor of hygiene, and the application of its mechanical adjustments, the admirable work of Dr. George Preston Brown, of Chicago, should serve as a text book to every architect, engineer, landlord, and tenant in the State. In fine, the present system of sewerage, drainage of houses, and suppression of sewer gas, with its death-dealing properties, will never be radically corrected until the entire work is submitted to a competent Board of Public Works, composed of educated engineers, and not of ward politicians or mercenary contractors. This work would necessarily revolutionize the present *modus operandi*, involve expense, and is entirely beyond the competency of Medical Boards of Health.

The perfection of life and health, the preservation from death of innumerable infant beings, amply justifies the necessary inevitable taxation.

We confess we are not of those who believe that a beneficent Creator added to all "the ills that flesh is heir to," the necessary heritage of a succession of infantile maladies; nor that parents, in their solicitude for the life of their progeny, should scarcely permit themselves to draw a breath of parental felicity until they see inscribed on the family record page of their family Bible, the list of infallible, nay, desirable diseases, as kine-pox, mumps, measles, croup and scarlet fever. All these maladies may be evaded by judicious sanitary care, or so mitigated as to prove innocuous, and their sequels, often more disastrous than the prior disease, be prevented. To these complaints may now be added diphtheria and diarrhœa.

Local extrinsic causes, remediable by man, and not the result of a divine fiat, develop their germs of disease. Doubtless somewhat of the increased infantile death-rate depends upon the general increase of population, as well as the more crowded state of the city in the five rain-months, to escape the weariness of winter life in the country. But, with this allowance, the death-rate is still too great and alarming.

We now approach the *intrinsic* side of the question. Herein the great dilemma lies. The Creator, all-wise and ever-benevolent, brought forth a being whose intentions and

functions were to live, to grow, and to fulfil a given cycle of life. Any interruption thereto is contrary to what has been ordained.

These interruptions are to be looked for in the organization of the family in the conduct of the home influences.

It has been said any normal woman can bring forth offspring, but only a limited number know how to preserve its life. But for Nature's all-protecting law, the fruit would nearly all perish.

INTRINSIC CAUSES.

The patriarchs of old, like Moses, were hygienic statesmen. They enacted ordinances for the public health *in families;* and their unlimited power, as inspired men, rendered their sanitary requirements sacred as Holy Writ. No self-willed objections were interposed. The protection of parturient women hence became a matter of the most tender solicitude in the family. She was affectionately secluded during pregnancy. All sources of mental shock which might damage or destroy, or cause any arrest of development of her offspring, were most sedulously precluded. In our *free* land these precautions are unheeded. Where ignorance possesses the same free rights of action as wisdom, sanitary precautions in the family are set at naught or violated with impunity. Too often is the loving counsel of the husband as little regarded as the enactment of the law maker. Hence the parturient submit themselves to but little restraint. By day they frequent the streets, exposed to all the mental shocks and violent accidents that crowded thoroughfares present. At night, soirees, theaters, balls, and festive assemblies attract them. Sometimes they dance the baby to death, or the sudden changes of temperature from heated halls to the cold weather without, imperfectly clad, with lungs congested by breathing second-hand air, exhausted of its oxygen, prostrates their vital powers. They sicken, are saved with difficulty, but the fœtus

succumbs, or is born anæmic, to survive for a couple of years, the victim of parental imprudence.

II. INFANTILE DISEASES AND THEIR SEQUELS.

A large proportion of the mortality from the maladies incident to early life might be eluded by an earlier recourse to, and more confidence in, the medical profession. This is not egotism, but fact and truth. To evade the doctor by domestic medication, is the pride of those who believe in hereditary knowledge of the efficacy of old home cures. At last, when in despair, the doctor is applied to; he arrives too late, except to witness the blight and grief of departed hopes and joys. Now, the innocent doctor is denounced for not performing a miracle. He has arrived in time to witness a crowd of importunate advisers and friends; shut-up, ill-ventilated apartments; foul air; ignorant use of even good remedies; overdosing of the wrong "cure;" tears, excitement, and confusion; with officious persons more difficult to treat than the disease, presented for his care.

When, however, this home nursing has apparently achieved its cure, and the smile of defiance on the doctor is duly indulged, come presently the alarming sequels. Sequent maladies of grave import supervene, for the primary has been squelched, not eradicated. Physicians know, however it may be with unskilled parents (and ancient doctresses), that the series of maladies, called infantile, already named, are not merely local affections, but are zymotic, constitutional diseases, with or without fever. Home cures are chiefly local and passive, as regards the true causa morbi. Still more, cerebral hyperæmia, or irritation of the brain and spinal cord, exists. Though the local symptoms of infection and fever may subside into apparent cure, yet the causa morbi still remains, liable, at the slightest provocation, to revive its activity in some serious secondary malady, wherein home rule is lost and defied. These sequences are the pneumonias, diarrhœas, cerebral diseases, paralyses, spinal curvatures, strabismi, con-

vulsions, etc. Herein intrude a large proportion of the fatal record on infantile vital statistics. The majority of such events would have been avoided by the judicious management of the primary disease.

III. THE BAD HOME TRAINING OF CHILDREN SWELLS THE MORTALITY RECORD.

The practice of almost unlimited indulgence, kind in principle, but often fatal in practice, allows the children practically to rule the house and "boss" the parents. This question has many details to dilate upon. We must blend them in the great remedy of better home discipline, by which the children obey their parents. A great diminution of infantile mortality would be secured. One great relief now looms up. Of Roman Catholic origin in California, it is now appreciated as an adjunct of public education. It cannot be too warmly fostered, nor too widely expanded. This home relief, full of sanitary, economical, and educational discipline, is the Kindergarten. It now prospers, and would that one might be opened in every block in the city.

IV. INDIGESTIONS, FROM BAD FEEDING, ARE A FERTILE SOURCE OF PAINFUL MORTALITY.

It is slow death, obtained through the luxury of food; *inanition* by superfluous and ill-regulated nutrition. We waive discussion, for the teachings, published in abundance, produce scanty fruition, but through these means the children die and undertakers live.

Malarious maladies are undoubtedly promoted by unclean domiciles. There is a surprising difference observed in visiting the homes of the poor, in the degrees of cleanliness and order of different nationalities. Herein the Germans excel. The sanitary condition of domiciles, however, depends more on landlords than on tenants. All tenement houses should be calsomined or whitewashed throughout, and their drainage

inspected, once a year. Walls, ceilings, floors, shingle roofs, dirty furniture, neglected sinks, unclean backyards, are all fomites of malarious germs, and thus all these objects are fruitful contributors to childhood's death-rate. Among the worst of these are filthy beds, containing rotting hair, saturated with the products of years of use and neglect.

Time limits this contribution to a subject replete with importance in filling up the record of infantile mortality.

Defective lactation ruins the chances of prolonged life for innumerable infants. How sad the thought that the loving mother's breast should convey starvation to her fondled offspring; yet too often do the inconsiderate devotions of the mother lead not alone to her own exhaustion, but also to the deterioration of the infant. We have seen the mammæ of young women utterly atrophied from prolonged suckling on breasts which no longer yielded milk. This mutual delusion unqualified the one for future lactation, and disappointed the nutrition of the other.

Hereditary transfusion by intrauterine circulation is perpetuated by the same abnormal lactation. These unhappy heirs, as they appear in the varied forms of arrest of development, are the syphiloids, the canceroids, the alcoholoids, the hydrocephaloids and idiots, the squalid old heads on fœtal bodies—all attest the transmission from generation to generation.

Certainly, we have the consolation, in this deplorable state of things, that they are amenable, and will yield to a judicious antagonistic treatment. But when the victim of heredity is informed that he must endure two or three years of patient, persistent medication, in California—the same elsewhere—he flies the old beaten road, and seeks some empiric narrow-gauge railroad of six months duration, to his goal. Yet, if seven years is the estimated time for the actual involution and re-evolution of the human body, it is certainly not too much to ask for half that time to effect the same reformation by aid of man's scientific intervention.

In conclusion, we venture to claim that infantile mortality is largely within the control of scientific intervention. Without resorting to superhuman agencies, or accrediting superstitious deistic resentful interventions, we claim that the entire subject of infantile mortality is amenable to scientific control. When, under our American system, universal education shall penetrate into every family; when supercilious ignorance will yield to the dictates of common sense—that is, intelligent comprehension of facts—then, and then only, may we hope to realize a certain and practical reduction in the record of infantile mortality.

REPORT ON SURGERY.

BY W. E. TAYLOR, M. D.

MR. PRESIDENT, AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: In glancing over the surgical literature of the past few years, one is forcibly impressed with the great attention addressed to, and the amount of operative work undertaken in abdominal surgery; and the advances made in this direction are greater, perhaps, than in all the other portions of the body, and certainly much more extensive than any of us dreamed of ten years ago; and, that, too, with results sufficiently brilliant and startling to cause us to open our eyes in wonder and admiration. Wonder, at the skill and boldness of the operators, and admiration for the pluck and endurance of the patients.

Ovariotomy may be considered, in a general way, as the pioneer operation in abdominal surgery; and when we look back and remember that McDowell's statement of the success of his first operation in 1809, was received with incredulity, and when finally it and successive operations were known to be true, how fiercely it was denounced by the medical profession, and also from the pulpit; how, in spite of all this, it steadily gained ground, until now it is established on as firm a basis as any operation in surgery. When we consider all these things, and think how much suffering has been prevented and how many thousands of years have been added to human life through its means, I think we may well be proud of it and willing to render due homage to its American originator, and to the long line of illustrious surgeons of all nations, who have by their skill and genius, aided in developing and bringing it to its present state of perfection. If its past has been brilliant,

its future certainly promises to be more so. Mr. T. Spencer Wells has recently completed a report of one thousand ovariotomies performed by himself, and with it, gives his statistics of death in each one hundred cases. From these, we learn that the death-rate has steadily diminished from thirty-four in the first one hundred, to eleven in the last; a very excellent result, but not so good as those of Keith, Tait, and Thornton, who show only three or four deaths per hundred.

In taking up some of the more recent operations in abdominal surgery, it may be well to consider, as far as practicable, the circumstances under which they were instituted, and the means by which they have been thus far developed. It seems strange that their development should have been so long delayed, and one would think that they would have followed much more rapidly in the wake of ovariotomy.

The principal factor in this delay was, no doubt, the fear of the results of injury to the peritoneum. This was, and is yet to some extent, the *bete noire* of intra-peritoneal surgery. Gradually we began to learn more about the actions of this membrane, to realize its wonderful powers of recuperation, to know from clinical observation, that many accidental wounds of it and its contained viscera did well, and that by observing strict cleanliness in the persons of the operator and assistants, and in the instruments and sponges used, in all the surroundings of the patient, and by careful attention to all details, before, during, and after the operation, we began to find out that these operations were not only practicable, but also comparatively safe; and gradually the dread of traumatic peritonitis lost much of its terrors. We were beginning to pay more attention to cleanliness, and [illegible] in its broadest sense as applied to persons, [illegible] dressings and hospital surroundings.

The advantage of free dr[illegible] began to be appreciated. We gave our pa[illegible] and better nourishment. All of [illegible] with increased knowledge of intra[illegible] and dimin-

ished fear of bad results, were bearing their legitimate fruit, and abdominal surgery was being slowly but surely developed.

About this time carbolic acid began to come into use. Wonderful properties were claimed for it, and soon the antiseptic wave commenced. At first a mere speck or ripple, just visible far off on the surgical sea, it gradually increased, slowly at first, then more rapidly, until it rolled on like a great wave, raising high its foaming crest, and swamping in its wild career, many a good ship laden with medical lore, and bade fair to engulf the medical world. On it came, ever on, until like the ocean wave, which breaks when it strikes the rock-bound shore, so this wave, when it struck the rock-bound shore of truth and reason, was dashed into countless fragments, and these are now being carried back by the returning wave into the great sea of medical fallacies.

The use of antisepsis, necessarily presupposes the existence of sepsis, in the same manner that the use of antidotes assumes the existence of poisons, and in toxicology we have the two factors, poison and antidote—something fixed and definite. On the other hand, there are several so-called antiseptics, all addressed to what? A sepsis or poison; a supposed something which has never been demonstrated, either microscopically or chemically, and it seems to be at least unphilosophical to have an array of antidotes addressed to an unknown poison.

Its advocates claim that by its means wounds are healed, without suppuration, under circumstances hitherto precluding such an event; that the abdomen and joints can be freely and safely opened; and, in fact, that many operations formerly considered impossible, are now possible and safe, and some of them go so far as to assert that nearly all accidents, after operations, are the fault of the surgeon, because of the neglect of antiseptic measures, and that any surgeon is criminal who does not use this particular system.

They point to elaborate statistics in support of their statements. Without going into details, I think I can safely assert that if any unprejudiced observer will carefully examine the literature of this whole subject, he will be satisfied that quite

as good results are obtained by other and simpler methods as by the strictest antiseptic treatment, and, if we may believe Keith and others, even better results.

The benefit derived from it is not commensurate with the time and trouble consumed in its application. This, however, would not be an objection, if it accomplished even one quarter of what it claims; but its results are no better, if as good, as by other and simpler methods, and this being the case, why use it at all?

Most of its adherents have given up the spray, others have variously modified it. What was true five or ten years ago must be true now, and if the spray was essential then, and none will deny that it was claimed to be so, it is just as essential now—then, why abandon it? Simply because it is not essential now and never was, and this is also true of the entire antiseptic system; a system founded upon a false basis, in which effects were mistaken for causes and where natural results were attributed to a particular system of cure.

We must not lose sight of the fact that, no matter how carefully an injury is treated, or how skillfully an operation is performed and the after treatment conducted, the question of a good or bad result is, in a great measure, due to other causes than to any particular system of therapeutics; that it is an individual affair, and this is always an uncertain element.

How often do we see the most unpromising cases get well under all sorts of treatments, and then, again, the most promising cases turn out badly under the most skillful treatment; and when we take a broad and comprehensive survey of the entire field we will be less disposed to adopt or become very enthusiastic over any special system of treatment.

We must make due allowances for the differences in individuals and the varying phases of diseases, and above all, we must not attribute too much to chemical action, but must recognize the great importance of vital processes. I fear that many of us are too much given, of late, to comparing the human body to a chemical laboratory and assuming that many diseases are poisons, and then endeavor to neutralize them by

some antidote, but I am pretty well satisfied that we can no more control vital processes by chemical means than we can legislate morals into a community, and this has been tried time and again and has generally failed. Assume, for the sake of argument, that diseases are due to germs which gain access to the body and multiply there until a certain number accumulate and then the individual gets sick; then assume, also, that any of the germicides will destroy these germs. Recollect that the human body is the retort in which this experiment is to be made. It seems to me, that by the time we get the system sufficiently saturated with the antidote to kill the germs we will also kill the person. All of which might be very good for science, but rather bad for the patient. As bearing on this subject, I read, during the past year, an excellent article in the *Virginia Medical Monthly.* I cannot now recall the writer's name. He was, to a certain extent, a believer in the antiseptic theory, and believing thus, he thought that we could not safely administer antiseptics in doses sufficient to destroy disease germs. I think his statement was as follows, viz: Taking salicylic acid, he said that it required a two and one-half per cent solution to destroy disease germs, and if we administered enough of this to cause the human body to represent a two and one-half per cent solution, it would require something like two and one-half or three ounces per diem; and then he very pertinently inquires: "Can you give that quantity in a day with safety?" I think we would all answer in the negative. I have, perhaps, devoted more time to this subject than was necessary, but it has been such a prominent factor in medicine for some years past, and has caused so much discussion and has gained such a control over the majority of our profession, that it seemed to deserve more than a passing notice. I have heard medical men say that while they only believed in it in part, or not at all, yet it was so popular and so much used that they would feel obliged to use it in order to feel that they had done the correct thing and not be blamed for its non-use in the event of any accident. Just such statements as these go far to show

how any fashion in medicine will cloud the minds of physicians and almost force them to use remedies against their better judgment.

In concluding this part of the subject, I desire to enter a plea for the continuance of the simplicity of surgical dressings hitherto so characteristic of American surgery.

Let us not soil its fair outlines with unsightly, nauseous, and cumbersome dressings, and let us use our own judgment and reason in these matters, and not be too much influenced by any exclusive dogma or system.

I do not deny that carbolic acid and its allies possess important therapeutic properties, but I do deny that they are antiseptics, in the sense in which they are used, and I think the sooner we realize and act upon this idea the better will it be for us and our art.

The antiseptic system, so called, has doubtless been the means of greatly developing the surgery of the abdomen and joints, and causing a more rapid advance in these directions; and its advocates claim that with it, they are enabled to perform operations in these regions that formerly could not be done. While we must give due credit to the advocates of this system for much of this advance, I do not think it is due to any particular excellence or safety in antiseptics. The true state of the case seems to be this, viz: Believing as they did in its safety, and with this feeling of false security, they undertook operations which they otherwise would not have risked. The results being pretty good, they, in their enthusiasm, claimed them all for their pet system, and seemed to ignore all other factors.

While we must accord *them* full credit for their work and success, we must *not* attribute this success to the antiseptic system, more especially as we now know that equally good results are obtained without antiseptics. In other words, the antiseptic system was the indirect cause of the undertaking; but the results of these operations were not due to that system, but would have occurred just as well without it, and therefore the credit is not due to it *per se*.

In commencing our review of operations practiced within the abdomen, we will first refer to resection of the stomach. This operation has been performed a sufficient number of times to give us some idea of its immediate results, but as yet not enough is known about it to enable us to form any decided opinion as to its future. I am unable to give the total number of cases and results, as the reports are so scattered through the various medical journals. Seven operations are reported during the past year. The recoveries from the operation itself have been sufficient to indicate that it can be done successfully.

Nearly all the malignant cases died from a recurrence of the disease, and of those surviving, too short a time has elapsed to enable any opinion to be expressed.

Practically, the excision of the pylorus, or any portion of the stomach or intestines, for cancer, would seem to have but a limited application, more limited even than extirpation of the uterus for the same disease.

This limitation is based upon the malignant nature of the disease, and its almost certain recurrence after removal, and also upon the uncertainty of the diagnosis, until the disease is pretty well advanced.

It is generally believed that if the removal of cancer is ever to be successful, it must be done early; but when the disease is located in the stomach, it is apt to be pretty well advanced before we can be sufficiently certain in our diagnosis to warrant operative interference, and by this time the disease will, doubtless, have involved the surrounding parts to such an extent as to render complete removal impracticable. In cases of non-malignant, fibroid degeneration of the pylorus, or some forms of simple ulcer of the stomach, a successful operation might give permanent relief; but the differential diagnosis is often difficult, and, at times, impossible. So, for the present, this operation is sub-judice, and time alone can determine its value and proper status; but, in such a cruel disease as cancer of the stomach, it seems that almost everything which will afford temporary relief, even at much risk, is indicated. Quite

recently, Dr. Anton Wolfler, Professor Billroth's assistant, undertook an operation for excision of the pylorus, but finding it impossible, he made an incision in the stomach, near the middle of the great curvature, and a similar cut in a coil of small intestines, and carefully sewed to one another the margins of the two incisions. The patient recovered from the operation, experienced marked relief, and was living four weeks afterwards. A second operation of this kind was performed by Professor Billroth—the patient died on the tenth day. Gastro-enterostomy is the name given to this new operation, and it is offered as a substitute for excision of the pylorus, in cases where that is found to be impracticable.

Gastrostomy has been successfully performed in a number of instances in cases of obstruction of the œsophagus from cancer or simple stricture, and it is indicated where it is very difficult or impossible to introduce food into the stomach through the gullet.

Enterectomy, or excision of portions of the small intestines, has been successfully made in cases of cancer, intussusception and stricture. The most extensive and remarkable of these was made by Dr. Koeberle, of Strasbourg, in a case where there were three strictures. He removed six and one-half feet of ileum, and the patient recovered. The operation lasted over three hours, and was not done antiseptically. On the second of December, 1881, Dr. Bozeman, of New York, removed a cyst of the pancreas, weighing twenty and one-half pounds. The diagnosis was ovarian tumor, and its true nature was not discovered until after the abdomen had been opened, the cyst emptied, and two-thirds of it drawn through the incision. The patient made a good recovery and was discharged on the thirty-eighth day. This case is interesting as being the only one on record in which the entire cyst was removed. Two other cases are recorded; in one, the operation was by incision and drainage, the patient recovering with a fistula. The other was by incision and partial removal of the cyst, with death on the tenth day from suppurative peritonitis. Removal of spleen, splenectomy, has been successfully accomplished. In

twenty-nine cases, it was removed sixteen times for leucocythæmia, all proving fatal. In thirteen other cases, eight survived. With such a record as this in leucocythæmia, it appears very evident that the operation is contra-indicated.

KIDNEYS.

When we look at the surgery of the kidneys we find several operations, viz: nephrotomy, nephrectomy and nephrolithotomy. Nephrotomy has been successful in a number of instances, in cysts, suppuration, and for the removal of renal calculi, although the term nephro-lithotomy has, of late, been applied to this last mentioned operation. The kidney can be approached through the linea alba or through the loin, the latter route being the safer and should be selected when practicable. If the kidney is extensively diseased or the removal of the calculus impossible, then the operation for its removal, or nephrectomy, should be done. This latter operation, according to Dr. Kroner's statistics, has been made forty-one times, and to this we may add four more recent cases, making forty-five in all, with twenty deaths. Twenty-one were made by abdominal incision, with fourteen deaths, and twenty-four by lumbar incision, with six deaths.

According to Professor Czerny, nephrectomy is indicated in cases of wounds, floating kidney, pyo-nephrosis, hydro-nephrosis, calculi, cysts and tumor, as soon as life is endangered and other means of treatment are ineffectual, the other kidney being sound. Exceptions to these rules can be made in all cases save those of tumors. Nephrotomy will answer, in some cases of pyo-nephrosis and cysts, and nepro-lithotomy, in some cases of calculi. Recently an operation for fixation of floating kidney has been successfully made upon several occasions. It consists in making an incision in the loin and attaching the wandering viscus to its margins.

The surgery of the bladder presents nothing especially new. Bigelow's operation, modern lithotrity or litholapaxy, as it is

sometimes called, and which consists in crushing and removing the stone at one sitting, is now established on a firm basis and is a genuine advance. It has been so ably described by its distinguished originator, and is so well known to you all, that further remarks are unnecessary. Sonneberg describes an operation, performed by him successfully, for extrophy of the bladder, in which he first separated the ureters from that viscus, then extirpated the bladder and attached the ureters to the vivified edges of the dorsal groove of the penis.

Hernia presents nothing special in the surgical line. All of the operations for its radical cure are uncertain as to ultimate results, and some of them are dangerous. All of them are apt to be partially or entirely successful at first; hence, probably, the number of reported cures; but the tendency to recurrence, sooner or later, is very decided. Dr. Warren, of Boston, advocates his modification of Heaton's operation, which consists in injecting the canal and rings with a mixture of fluid and solid extracts of quercus alba, alcohol, ether, and morphia. He claims that a sufficient amount of tendinous irritation is set up to prove curative in a majority of cases. It certainly has the merit of simplicity, and seems to be quite free from danger, and for these reasons it merits a fair trial at the hands of the profession.

It would seem that tannic acid might be substituted for the extract of quercus alba.

Laparotomy is one of the most valuable operations in abdominal surgery, but it has not yet attained that recognition which it merits. It has a wide and increasing field before it, and this is being rapidly developed, and with most excellent results. I know of no single operation which promises so much in the way of relief to the suffering, and the saving of life, in cases where indicated, as this one. The indications for it are numerous, both from a diagnostic and a therapeutic point of view. It is especially indicated in acute intestinal obstruction, particularly when occurring in the small intes-

tines, whether from intussusception, bands, or twists of the bowel. We can expect but little from medicine or nature, in these affections. True, in a few cases of intussusception a portion of the intestine has sloughed, been discharged, and recovery has taken place, but these are rare, and the method very uncertain. Doubtless thousands of lives have been lost from intestinal obstruction that might have been saved by timely surgical assistance.

As soon as the diagnosis is made, the operation should be done, and done early, before extensive pathological changes occur, and before exhaustion takes place. It is not so much the operation that is dangerous, as the cause which necessitates its performance. The abdomen should be opened in the middle line, the obstructions sought for and remedied in such manner as may seem best indicated, by disengaging the intussusception, division of the constricting band, removing the twist, or, if necessary, by the formation of an artificial anus, or resection of the intestine. In rupture or wounds of the bladder, with escape of urine into the peritoneal cavity, and in rupture of the uterus during labor, this operation is also plainly indicated.

In gunshot wounds involving the peritoneal cavity and its contents, especially if the intestines are wounded, the operation should be done with the view of ascertaining more precisely the nature of the lesion, to remove foreign bodies, and to establish free drainage.

I am aware that the doctrine of non-interference, surgically, is taught, and opium is principally relied on. In the trial of Stokes for the murder of Fiske, in New York, a few years ago, one of the lines of his defense was that his victim's death was the result of surgical interference, ignoring entirely the fact that a bullet had gone into the abdomen.

When a bullet goes crashing into a person's abdomen we cannot always tell how much damage it has done, but if we feel that no serious injury to the contents has occurred, we can afford to wait and watch developments. If serious

symptoms, indicative of visceral injury, arise, or if, at the time of the injury, we know that the intestines have been wounded, then I think it is our plain duty to make a laparotomy, not necessarily to search for the bullet, but in order to ascertain the nature and extent of the injury with a view of treating it intelligently. It seems that such a practice is more in accord with sound surgical principles than keeping the patient quiet with opium, taking the chances, and awaiting the almost inevitable result. It is certainly justified, not only by the gravity of the case, but also by the good results from intra-peritoneal surgery in other cases not very dissimilar.

I do not wish to be understood as advocating operative interference in all penetrating wounds of the abdomen and pelvis, but principally in those complicated with wounds of the intestines or bladder, with or without lodgment of a foreign body, which condition was recognized at the time, and in other wounds not regarded serious at the time of reception, but in which serious symptoms, such as traumatic peritonitis, subsequently supervened. In this connection we may inquire if there is not a field for this operation in some severe cases of non-traumatic peritonitis, accompanied with much effusion, either serous or purulent, especially the latter.

I cannot better close this portion of my report than by referring to some statements made by Mr. Lawson Tait, at the London Congress, in reference to some recent advances in abdominal surgery. He says:

"I have, in papers already published, laid down the principle that every clearly non-malignant tumor of the abdomen or pelvis which presents the likelihood of destroying the patient, or which, by reason of suffering caused by it, greatly interferes with the comfort of life, should be investigated by an exploratory incision. Acting upon this principle, I have opened the abdomen in many cases which, until recently, were not regarded as within the province of surgical effort. Amongst these were included one case of gall stone, five cases

of hydatid of the liver, one case of large cyst of the liver, six cases of cysts of the kidneys, one case of splenic abscess, twelve cases of pelvic abscess, four cases of suppuration of the Fallopian tube, and six cases of Fallopian pregnancy. Of these thirty-six cases only one died, that being a case of Fallopian pregnancy. The child is still living; the mother was too much exhausted for recovery to be hoped for."

He further states that in a few instances he attempted to employ antiseptic details, but found them cumbrous and impracticable; that the patients recovered perfectly well without them, and that the employment of carbolic acid rather impeded recovery than aided it.

We are now having a "boom" in abdominal surgery. That much of it is real advance, none will deny. Some of it, particularly extirpation of portions of the stomach and intestines for malignant disease, would seem, at present, to illustrate more the skill of surgeons and the powers of human endurance, than to be indicative of any sound surgical advance; but even these cases, if of no permanent benefit, assist in giving us some idea of how much can be done, and will enable us to take advantage of this knowledge and apply it to cases where recovery from the operation will also mean complete recovery from the disease for which it was done. In this way, at all events, these operations will be of benefit. Urethral surgery presents nothing novel. The question of dilatation internal urethrotomy, and divulsion, in the treatment of urethral strictures, still causes the usual amount of controversy; and this difference of opinion will last as long as people continue to have strictures, which will probably be until the end of the chapter. Those who recognize the fact that no one method is suitable in all cases, but who adopt that method best suited to each individual case, will have the most success in this particular branch of surgery.

Professor W. F. McNutt, of San Francisco, has recently informed me that he has obtained most excellent results in the treatment of acute gonorrhœa by the use of hot water injec-

tions, basing their application upon their well known efficacy in vaginal and uterine diseases, and their beneficial effects in inflammation of mucous membranes generally. His method of using it is to irrigate the urethra several times a day, and in the following manner, viz: the patient should sit in a warm bath, and having passed a small wire speculum, some four or five inches in length, down the urethra, so as to distend the canal, he then injects with a syringe—preferably of the Davidson type—water as hot as can be borne, for ten or fifteen minutes. If the speculum and bath are not available, the injection can be made without them. The doctor states that with this treatment chordee is rare, and that the heat, scalding and inflammatory symptoms quickly subside, requiring only a few days to accomplish that which would require several times that long under the usual methods. After a few days some of the ordinary astringent injections can be alternated with the hot water. Internally, he uses such treatment as may be indicated by the circumstances of each individual case. This mode of treatment is so simple, so cleanly, and, according to its distinguished author and advocate, so efficacious, that it merits a trial, and certainly we all have ample opportunities in our practice for testing it.

Under the head of surgery of the rectum, excision of a portion of it for cancer, and the physical diagnosis of stricture, are the principal points to be noticed. The immediate results of excision are very good, death from the operation occurring about once in five cases, those surviving being much relieved, and living through periods varying from several months to several years; but sooner or later recurrence of the disease may be expected.

From an analysis of one hundred and forty cases of this operation for cancer, Dr. Charles B. Kelsey, of New York, draws several conclusions, among which may be mentioned the following, viz:

"When the disease reaches above three inches, or involves neighboring parts to such an extent as to render its entire

removal, without injury to the peritoneum, questionable, the operation is contra-indicated. The operation is chiefly valuable as a palliative measure, and as such, in cases where it is indicated, it compares favorably with lumbar colotomy, both in prolonging life and relieving pain. It is not a substitute for lumbar colotomy in cases where the disease has reached more than three inches from the anus; and lastly, there is no proof that the operative interference shortens life by hastening the progress of the disease."

In cases of stricture of the rectum beyond the digital touch, and consequently, often not discovered, the best method of examination is that devised by Surgeon-General P. S. Wales, United States Navy. It consists of a rubber tube, open at both ends, and from fifteen to eighteen inches long. Over one end is fitted a rubber cap. The tube is passed up the bowel six, eight, ten, or more inches; a Davidson's syringe, with a special tube, is then attached to the open end, and the cap distended to a previously determined size by injecting water through the tube. The tube is then withdrawn, and if the bulb is caught, water is allowed to escape slowly until the bulb will easily pass the constriction. The size which it presents after its removal will indicate pretty nearly the caliber of the constricted part. This process is much better than attempting to pass a bulb from below upwards. For treating rectal strictures by dilatation, especially the deeper ones, he uses rubber tubes of different sizes, with a rubber sheath fitting over one end and extending nearly the whole length of the tube, and tied tightly at its lower extremity. The instrument is passed beyond the stricture, and the sheath distended by injecting water through the open end of the tube, and dilatation is easily and safely produced. The rubber dilators are cheap, effective, and easily and safely handled.

ASPIRATION.

This operation is by no means a new one. Attention is called to it, because, in the opinion of the writer, its applica-

tion is entirely too limited. Powerful for good, and with ordinary care almost harmless, it is a most efficient means in diagnosis and treatment. It is most frequently employed in collections of fluid in the pleural and abdominal cavities; occasionally in the pericardium, joints, and in hydatid cysts and abscesses of the liver, and no one who has seen it used will question its great value. I desire more particularly to call attention to its use and value in acute pleurisy with effusion, and in effusion occurring in acute inflammation of the joints. From a considerable experience with it in the effusions in acute pleurisy, I can recommend its use at an early stage. In one case I used it at the end of the fourth day, withdrawing thirty-two ounces of serum. As a rule, it is better to await the completion of the effusion, but it can be used at any time prior to this event, if the symptoms are at all urgent. Employed in this manner, it saves much suffering, curtails the illness, prevents damage to the lungs from long continued compression, and also limits the extent of the adhesions. Unpleasant symptoms are said to occur, but, so far, I have never seen them, nor any injury at all from the operation; nor do I believe that aspiration of the chest has a tendency to cause a purulent condition of the effusion. As a means of diagnosis in a doubtful case, it is invaluable, for there are some cases of pleurisy, especially in children, where the diagnosis cannot always be made by the usual signs and symptoms. It ought to be used more frequently, and for diagnostic purposes, if an aspirator is not at hand, the ordinary hypodermic syringe will generally answer. It is of immense benefit in acute inflammation of the knee joint, with effusion and painful tension. Its performance is easy and simple, and the relief is immediate and great, and its more frequent use would be the means of saving many joints from destruction, for the long continued presence and pressure of fluid must have a pernicious effect upon the intra-articular tissues, to say nothing of the stretching and weakening of the ligaments. In two cases of injury to the knee, occurring in

my practice about two years ago, and accompanied with great pain and swelling—and in each case the joint was distended with blood—the aspirator was used with the best results. In one case it was used once, recovery following in a few days. In the other case it was used four times within ten days, with great relief each time, and complete recovery at the end of two or three weeks.

My object in referring to this operation is to suggest its more general use, especially in acute pleurisy, and in acute inflammation of the joints, with effusion, and as a means of diagnosis in many doubtful cases. It is a safe and easy way to empty a distended bladder, and can be used as a substitute for the rectal puncture. In abscess of the liver it is valuable, and in suspected cases the liver can be fully explored without the least risk.

The treatment of pyothorax by free incision and drainage is now so well established that further reference to it is unnecessary.

Nerve-stretching is employed frequently, for relief of pain and spasm, and in some cases with pretty good results, but its real value remains to be determined. Stretching the sciatic nerve in locomotor ataxia has, in some instances, been attended with good results in the "lightning pains" in the lower extremities, and it is asserted, also with relief to the spinal symptoms. It is difficult to realize this latter, and one must naturally entertain some doubt about its accuracy. It is not easy to understand how stretching the sciatic nerve can benefit the diseased portion of the spinal chord; not even a very liberal interpretation of that much abused term, "reflex," will enable us to see it. It seems to be one of those "*post hoc*" cases, if anything at all.

Extirpation of goitres, after having been strongly condemned by some leading authorities, and well nigh abandoned, has again come to the front as a legitimate operation, thanks to the efforts of the late Professor Green, of Maine. Professor Billroth has, during the past five years, operated fifty-

eight times upon fifty-five cases, and with only seven deaths, a result certainly sufficiently good to warrant its further performance.

Chian turpentine, so loudly vaunted as a cure for cancer, has been carefully tried, and found absolutely worthless. We are getting quite accustomed to these announcements of cancer cures, and equally accustomed to hearing of their failure. While it certainly would be desirable to have remedies of a curative nature in this terrible disease, and thousands are earnestly working in that direction, it does not seem, viewing this disease from its most modern histological and pathological standpoint, that we can expect anything like specific remedies will ever be found.

The compression treatment of aneurisms by means of the elastic bandage, has not been as successful as was anticipated, and numerous instances of failure have been reported. It seems to be better adapted to those cases that are pretty well sacculated. Dr. A. F. Sawyer, of this city, has made a most valuable addition to the methods of treatment of aneurism by pressure, which I think will supersede all other means of applying pressure, not even excepting the digital, which latter is not always available. It is very simple, and consists in a funnel-shaped canvass bag, capable of holding from fifteen to twenty-five pounds of small shot. The small end is plugged with a small, soft rubber ball. A sufficient weight of shot is then put in the bag, and it is attached to a pully arranged over the bed. The bag is then lowered, and the ball caused to press on the artery. By this means the pulsation can be partially or completely controlled, and the pressure can be easily continued as long as may be prudent or necessary, either with or without anæsthesia, as may be indicated. By varying the size and weight, it can be applied to almost any artery capable of being compressed.

Internal condylotomy, better known, perhaps, as Ogston's operation for relief and cure of genu-valgum, has not only realized all that was claimed for it, but even more, and a num-

ber of cases have been cured. The section of the condyle can be made with a narrow saw, as practiced by Ogston, or with a chisel, as practiced by Reeves. There is, perhaps, but little choice between the two instruments. It would seem, however, that there would be less debris from the chisel.

Dr. MacEwen recently reported to the Royal Society, London, a most interesting case of transplantation of bone, and the first of its kind on record. The patient, four years of age, had lost two-thirds of the shaft of the humerus, by necrosis, fifteen months previously. There was no osseous repair, and the limb was useless. The operator made a groove in the soft tissues, in the position which the bone should occupy, and placed in this groove some pieces of bone removed from the curved tibiae of other patients; new bone formed, and united to the upper epiphysis and the lower part of the original shaft, the limb being only one-half an inch shorter than its fellow. A very curious and interesting case indeed, and there might be some difficulty in deciding whether the new bone should be called a humerus or a tibia. The treatment of fractures of the long bones presents nothing particularly new, save perhaps an increase in the appliances. There is one important subject, however, in connection with the diagnosis, prognosis, and results of treatment in this class of cases.

It is generally conceded that we must expect more or less shortening in nearly all fractures of the long bones, especially the femur, and this bone will be selected for the purpose of illustration. The shortening varies considerably, and the estimate of its amount will vary with the skill and methods of different observers; scarcely any two will find exactly the same amount of shortening in any given case. This is due, in a great measure, to the difficulty of getting sufficiently fine and accurate fixed points from which to measure—for none of the points are so sharply defined and circumscribed, but that they will allow a little latitude—and it is very doubtful if we possess any simple method of getting

accurate measurement. In connection with this, the subject of the normal asymmetry of long bones, especially of the lower extremity, is of importance, not only in a medical, but in a medico-legal aspect. It has been demonstrated beyond a doubt, that there is frequently a difference in the length of the two ossa femoris, which varies from one-fourth to three-fourths of an inch. We should always bear this fact in mind in treating these cases.

Its application is very obvious. Take, for instance, a case in which one femur was normally one half an inch shorter than its fellow. Now let the longer bone get broken, and when the union occurs, say with an absolute shortening of one half an inch, then our measurement would indicate recovery without shortening, and this result, in the absence of the knowledge or suspicion of a possible previous difference, would naturally be attributed to some especial skill on the part of the surgeon, or some particular excellence in the method employed, or both combined; and I am inclined to think that some of the reported cases of recovery from fractures of the femur, with little or no shortening, would come under this head. Reverse the case, and let the shorter bone get broken, and unite with the same amount of absolute shortening, viz: one half an inch, then our patient will get up with a comparative shortening of one inch. Comment is unnecessary. We should ever bear this asymmetry in mind in treating fractures, and in expressing opinions as to results; and especially ought it to be made use of in suits for malpractice, which are so common in this class of cases.

THE MODERN USE OF THE FORCEPS,

WITH DEMONSTRATION OF TARNIER'S NEW INSTRUMENT.

BY W. H. MAYS, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: The most convincing proof of the progressiveness of obstetric science may be found in the history of the midwifery forceps during the present century. Confining our remarks to English-speaking countries chiefly, we find, at the opening of the century, a prejudice against them, fixed and wide-prevailing. Procrastination was held to be the chief virtue of the accoucheur. An exaggerated confidence in the powers of nature caused him to regard with horror any attempt to aid those powers by operative means. Forceps deliveries did not average one in a thousand. Prominent practitioners boasted in print that they had never used them once in their lifelong careers. The forceps in labor was to them pretty much what tracheotomy in diphtheria is to us—a desperate and unjustifiable undertaking. Should interference at length be determined on in protracted labors, it seems that the revolting process of craniotomy or evisceration found the greater favor. When Dr. Meigs so happily termed the forceps the "child's instrument," he no doubt had in his mind this preference for mutilating and destroying the child. An instance is given by Burns, in his Midwifery, of the strange reluctance of our fore fathers in medicine to render operative assistance during labor. He quotes from Dr. Osborn, who, in describing a case of impacted head, apologizes for using the forceps by

explaining that "all the powers of life were exhausted; all capacity for further exertion at an end. Both mind and body were rapidly sinking under the influence of continued and unavailing struggles." The woman was evidently not far from moribund. "When such a state be allowed to take place," remarks Dr. Burns, "the interference of art will prove as unavailing as the struggles of nature." When from fear of the forceps their use was thus deferred to the last extremity, the results would only go to increase the prevailing distrust of the instrument.

The period we are considering was the dark ages of the forceps. It looked for a time that the instrument would sink entirely into disuse under the weight of professional obloquy. Smellie, who flourished in the early part of the eighteenth century, calculated that the forceps were required in one out of one hundred and twenty-five cases of labor; while the obstetricians of a hundred years later held that once in eight hundred or a thousand cases was enough. Eminent practitioners like Dr. Clarke, of Dublin, whose practice extended over a period of forty years, and included nearly four thousand cases of labor, never used them once. Denman was opposed to their use till the patient was absolutely sinking from exhaustion. As late even as 1841, Churchill estimates that in Great Britain the forceps were used in but one in three hundred and fifty-one cases of labor.

It was not till towards the middle of this century that a marked and general change of front on the forceps question became apparent. The profession began to recognize that to temporize in cases of arrested labor was the worst possible thing to do, and that the timely use of the forceps in these cases, so far from being hazardous and barbarous, was humane and positively life-saving. A strong impulse to this feeling was derived from the reports of the Dublin Rotunda Hospital. This renowned [illegible] having brought about the [illegible] of the forceps, its well kept and carefully tabulated records [illegible]

light than any other form of argument could possibly do. Dr. George Johnston took charge of the hospital in 1852. Under his management the forceps were no longer left to rust ingloriously. The part they played in the lying-in room must have fairly taken away the breath of those respectable practitioners whose faith in the all-sufficiency of nature was built on a rock. While his predecessor, Dr. Labatt, never applied the forceps to a single parturient woman during the whole term of his mastership, Dr. Johnston applied them once in every ten or twelve deliveries. The one used them upon one in ten; the other upon one in twenty-two thousand women in labor—a revolution surely sweeping enough to suit the most ardent of enthusiasts. But the change was a little too rapid and ultra. It was the swinging of the pendulum from one extreme to the other. That whatever in human affairs is good and lasting is of slow growth, is an axiom that applies to medicine with peculiar force.

The controversy that followed upon the startling propositions of Dr. Johnston and his school subsided some ten or twelve years ago; but the question then at issue, be it noted, was not whether to employ the forceps at all in tedious or difficult labor, but *when*. The result was, as might be expected, a triumph for the extremists of neither side.

What, then, is the position of the forceps in modern midwifery?

First, no one now disputes that a moderate use of the forceps is followed by a saving to fetal life, and, though to a less extent, to maternal life; for it is found that the long labors are the fatal ones, as a rule. The mortality of labor increases with its duration, in equal ratio. When labor lasts over thirty hours, one woman in thirty-four dies, and one child in five. When labor lasts over forty hours, one woman in fourteen dies, and one child in three and one half. When labor is prolonged over fifty hours, one woman in eleven dies, and one child in three. When labor is prolonged over sixty hours, one woman in eight dies, and one half the children. These

figures are pregnant with meaning. They show the progressive fatality of delay, and make an argument for the judicious employment of the forceps as eloquent as it is unanswerable.

But granting the value of the forceps as a remedial means in abnormal labors, it cannot be denied that the current of modern feeling is decidedly against the over-use of the instrument so widely advocated twenty years ago. The reactionary wave has reached the steps of the Rotunda itself, where the present master, Dr. Lombe Atthill, has recourse to the "iron hands" much less frequently than did his predecessor. In what is known as the German school of obstetrics, the tendency to restrict their use is becoming more and more noticeable. Speigelberg asserts "statistics prove that increased frequency of operative interference does not give a decrease of mortality for mother or child." It should be remembered that the forceps are at best a remedial agent only; they are to supplement the powers of nature when those powers are inadequate. The physician who resorts to instruments merely to save time, deserves severest reprobation. If he has not the time to conduct a labor properly, he has no right to undertake it.

How often then should forceps be applied?

It ought not to be a difficult matter to answer this question in a general way. The indications for the use of forceps are less frequently met with in this country than elsewhere. Indeed, the other operations common to the pathology of childbed, such as cranotomy, turning, decapitation, and Cesarian section, are called for so seldom as to be reckoned among the curiosities of surgery. We have no rickets here. Deformed pelves are the greatest of rarities. The average size of the fetus is not materially greater than in other countries, nor is the head disproportionately large. As to the alleged physical degeneracy of American women, I take no stock in the assertion. It is true we do not find her yoked in with the cow or the horse in the plow-field, but for all that, I believe she is as well fitted

for the duties of child-birth as her French, German, or English sister.

It may be estimated that the conscientious physician of the present day will not find himself called upon to apply forceps in more than three per cent, or at most, four per cent of his midwifery cases. A not very early and not very frequent resort to instruments, will secure the very best of after results: the lowest death-rates and the smallest proportion of torn cervices and ruptured perineums.

Leaving the matter of the application of the forceps, let us turn to the instrument itself, which, as you know, has in the course of years undergone the widest modifications in construction and shape. I here show you an exact model of the forceps used by Chamberlen himself. They are flat, small, rudimentary, and as you see, could grasp the head only when it was near the outlet. Smellie, among other improvements, gave the blades a curve forwards, to adapt them to the curve of the pelvic canal. This is known as the pelvic curve, or the curve on the flat. Since his time, the changes and improvements proposed in the obstetric forceps are "too numerous to mention;" almost every obstetrician of note having identified his name with some modification of the instrument. But convenience, as well as truth, will be subserved by considering the various styles in use as belonging to one of two great classes; as based in fact upon the model of either the Hodge forceps, or the Simpson forceps. All the varieties extant may be ranked as but deviations from these two great models.

I here exhibit the forceps designed by Hodge, of Philadelphia, the eminent teacher and author, and greatest of American obstetricians. Emanating from such a source, these forceps soon attained wide-spread popularity. If that popularity is now on the decline, I think I can give you the reasons. The chief fault in their shape is the widening of the fenestræ at their bases. You see the fenestræ are uniform, as large below as above. The purpose of this enlargement of the fenestræ was, it is said, to allow the parietal bosses to jut through.

But more often than not, the forceps do not grasp the head exactly in its bi-parietal diameter. As a matter of fact, the parietal bosses do not as a general thing jut through the blades, nor is it of much consequence whether they do or not. In high operations, the head will generally be seized obliquely, over the brow and the side of the occiput. The fetal head is grasped by the anterior half of the blades, the posterior half has but little to do with prehension. I repeat that it is the upper half of the blade that has to do the grasping and holding. The blades do not lap over the head, so that any expansion of their lower part is not only unnecessary but dangerous. It gives us a sharp edge pushed out where it can do great damage. Unless the blades fit in close contact with the head, and we know how seldom that happens, we have two bulging steel rims projecting down in front of the head. As the head descends, they move down in advance of it, with the liability of injuring the soft parts and cutting through the not yet dilated perineum. I am certain that this vicious conformation of the blades, has, even in the most skillful hands, ruptured thousands of perineums.

The objection that is often made to the handles is of less moment, yet how these substitutes for handles ever came to be received as an improvement, is a mystery. What we need is a firm solid grasp; something difficult to get on these thin, smooth, slippery steel rods. Ask a sailor whether he would sooner pull on a thin half-inch cord rather than on a stout rope that he can lap his fingers around.

That the Hodge is a graceful instrument, I shall not attempt to disprove. To do so would call down a whole volley of adverse dicta; for, with pleasing unanimity, almost every writer on the subject pays a tribute to the graceful outlines of these forceps. But the instrument must be poor indeed, whose chief recommendation lies in the statement that it is slender and graceful, and its curves strictly in accordance with Hogarth's line of beauty. In the construction of an instrument on which the issues of life and death so often depend,

it should not even be suggested that utility has been sacrificed at the shrine of gracefulness.

The forceps I now exhibit are those of James Y. Simpson. You will notice that the fenestræ are pyriform, the width greatest above where the strain comes, the blades narrowing towards the shanks, to avoid mutilation of the soft parts. The handles are of wood, solid and sturdy, indented to receive the fingers, thus giving a firm hold and preventing the hands from slipping. For general use the Simpson forceps is the best. It is gaining in reputation with each succeeding year. The best evidence of its superiority is found in the approval it is receiving from the obstetricians of this country, as well as from the rank and file of the profession. Professor Lusk, in his Midwifery, announces himself a firm adherent of the Simpson forceps. Dr. Fordyce Barker expresses his preference in as decided terms. Dr. Jenks, of Chicago, is enthusiastic in its advocacy. Most significant fact of all, the Simpson forceps is rapidly displacing that of Hodge among the physicians of Philadelphia itself. This is the statement of Dr. Parry, American editor of Leishman.

But the most radical change yet proposed in the construction of the obstetric forceps remains to be described. I allude to the invention of M. Tarnier, the distinguished obstetrician of the Paris Maternity Hospital. His now famous instrument is designed chiefly for use at or near the upper strait, and is based on the principle of axis-traction—that is, traction in the direction of the axis of the canal. The first rule of the forceps is, we are taught, "always draw in the axis of the canal;" but with the forceps hitherto in use it is by no means an easy thing to do. Tarnier asserts that, with the head at the brim, it is impossible to draw in the axis of the canal with the ordinary forceps, but that the force is expended on the posterior surface of the symphysis pubis. The line of traction should be almost directly backward, towards the hollow of the sacrum. How, then, to make traction backward? The resistance of the perineum and coccygeal muscles effectually prevents it, with

the ordinary forceps. Traction simply drags the head to the posterior surface of the symphysis, altogether forward of the axis line, and the result is injury to the soft structures intervening, and failure to bring down the head even after the most energetic display of muscular strength. It is in these cases that the forceps often yield to the strain and slip off, mutilating terribly the maternal structures. Tarnier shows, too, how the common forceps arrest the natural revolving motion of the head under the pubes, and prevent the movement of chin extension so necessary to emergence. He also objects that they give the operator no means of knowing in what direction traction should be made as the head is being drawn through the pelvis.

These criticisms of Tarnier on the common forceps, particularly the charge he makes against it of inefficiency in high operations, are founded on a close study of the process of parturition, and will not, I think, be disputed by any practitioner of experience. The Tarnier instrument is ingeniously designed to meet the above mentioned difficulties, and to relieve instrumental delivery of the often disastrous results of misdirected traction. He claims that:

1. With it the fetal head at the brim is drawn backward into the sacral hollow, not forward upon the pubes.

2. It permits the operator to make traction in the exact axis of the pelvic canal, at any point in that canal.

3. It allows the fetal head mobility enough to follow freely the curve of the canal.

4. It provides an indicator which shows the operator the precise direction in which, at each moment, he should make traction, so that he is not working in the dark.

The instrument I show you is Lusk's modification of Tarnier's forceps. It consists, as you see, of two parts; first, a pair of prehensile branches, which resemble ordinary forceps, except that the handles are curved backward, giving to the side view a somewhat sigmoid outline. These are not to be

used for traction; they simply grasp the head. They are held together by a screw. The other part consists of two tractile rods, jointed to the lower part of the fenestræ and terminating in a cross-bar. They have the same curve as the prehensile branches. Traction is made by them alone. Pulling upon the tractile rods, the prehensile branches swing upwards as the head descends and revolves under the pubes. The prehensile branches thus act as an indicator or guide to show in which direction to draw.

I now proceed to demonstrate, on the manikin, the application and use of the Tarnier forceps. The fetal head is at the upper strait. The blades are introduced in the ordinary manner, except that the right branch is inserted first. When once locked and screwed together they are not to be touched by the hands during the operation. The cross-bar gives us a powerful hold for traction, and the tractile rods are so articulated as to permit of free rotation. Laceration of the posterior vaginal wall and perineum is, you will notice, reduced to a minimum, the whole instrument following the curve of the canal. As the head descends the handles rise, forming an automatic needle pointing which way to pull. As the head nears the floor you see the indicator points upward. You also perceive the complete mobility allowed the head in its passage, permitting it to rotate into varying positions, as in natural labor. When the head is held with the ordinary forceps this freedom of movement is impossible.

Such are the Tarnier axis-traction forceps. The verdict of time and experience has yet to be rendered, but that a benefit has been conferred on obstetric art by the invention of the celebrated Frenchman can hardly be doubted. It facilitates extraction by following the indications of nature. It saves the perineum. It relieves the operator of force-expenditure to a remarkable degree. In the words of Dr. Lusk: "To one accustomed to the familiar forceps, the facility with which delivery can be accomplished by Tarnier's instrument would seem hardly credible."

The chief objections that have been brought against it are its cumbrousness, its complexity and its costliness. But if we admit the correctness of the principles on which it is based, and if it be proven that the instrument is practically superior to all other shapes, the first two, at least, of these objections fall to the ground.

A very ingenious adaptation of the principle of axis-traction has been brought forward by Dr. Vere G. Webb, which I now exhibit. The Webb forceps are designed to unite the advantages of the ordinary long forceps and the axis-traction forceps, while dispensing with the extreme size and costliness of Tarnier's instrument. They are a Simpson forceps with the handles bent at right angles with the shanks. There is also a deep, backward curve in the shanks. With these forceps traction may be made in the axis of the sacral curve, that is, backwards. The instrument is extremely simple compared with Tarnier's, and the cost only that of the ordinary long forceps.

REPORT OF THE COMMITTEE ON HISTOLOGY.

BY PROFESSOR J. H. WYTHE, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: The medical profession, in common with the majority of the scientific and literary world, takes great interest in everything relating to the nature, origin, and propagation of septic organisms or microscopic particles capable of exciting morbid processes in the blood and tissues of men and animals. Hence the eclat attending the researches of Pasteur, Cohn, and others, respecting bacteria. Nevertheless, the amount of positive knowledge as to the influence of such organisms is very small.

The conditions necessary to enable us to pursue such recondite investigations are such as to debar the majority of our profession, in this country at least, from original investigations. Instruments and lenses suitable for ordinary diagnosis and histological work are quite inefficient in these studies. The very highest powers, and the best lenses, together with exceptional skill in their use, will be necessary to trace the life-history of particles so minute. The observer also, although well provided and qualified by years of practice, requires much leisure and patience, since the same particles must be identified during its various changes, or ingenious methods of experiment resorted to for attaining the same result. The absence of all philosophic or theoretical bias is presupposed on the part of those who would make permanent contributions to knowledge. If all these personal qualifications could be found in our profession, the *res angusta domi* would still interfere with such work and hinder progress.

The consciousness of such difficulties keeps many from entering the field of investigation at all, and disposes them to receive without question, and often at second-hand, whatever may be presented by those whose names are famous for such studies. It ought to be remembered, however, that the observation of facts and sound reasoning concerning the meaning and application of facts are not always found combined in the same person. A well trained physician who has been long accustomed to diagnose by the process of exclusion, may be better capable of seeing the exact significance of described facts than the original discoverer himself. It is by no means to be considered presumption, therefore, for one who is unskilled in a specialty, to examine the recorded observations of the specialist in the light of the sharpest logic, and compare them with other facts belonging either to the same or other departments of knowledge.

Respecting microscopic organisms which are supposed to be of septic character, some facts are known which indicate that minute fungi, or bacteria, are the originating causes of a few diseases, as anthrax, septicæmia, relapsing fever, chicken-cholera, etc. Even this conclusion, however, is objected to by some who consider the evidence to fail in establishing the bacteria as a cause. The argument and the reply to it (whether satisfactory or not), is thus briefly given by Dr. G. M. Sternberg, Surgeon, United States Army:

"The argument is, bacteria are found everywhere—we eat them, we drink them, we draw their germs into our lungs at each inspiration, and without apparent injury. They are evidently harmless. Your spirillum of relapsing fever does not differ from a harmless spirillum frequently found in the human mouth; your *bacillus anthracis* does not differ from *bacillus subtilis*, etc. The answer is plain. The fact that there are harmless bacteria does not disprove the possibility of pathogenic bacteria. The fact that the two things look alike does not prove that they are alike." *

* Report to National Board of Health on Septicæmia in a rabbit, produced by subcutaneous injection of human saliva. By G. M. Sternberg, Surgeon, United States Army, 1881

The presence of bacteria in pathological as well as normal substances is easily understood, if we remember what modern botany has established concerning their natures and properties. They belong to the natural order *schizomycetes*, a group of organisms so small as to appear only as minute dots or rods under the highest powers of the microscope. By some botanists they are classified among algæ, others consider them intermediate between the animal and vegetable kingdoms, but all their affinities show their relation to fungi, since they live on organic substances, and are destitute of chlorophyll. The name schizomycetes (cleft fungi), is given them because of the ease with which they break up into separate cells when they come into contact with the atmosphere. They include the forms known as *micrococcus*, or globular bacterium; *bacterium*, a rod-like form; *vibrio*, or spiral bacterium; *spirillium*, etc. The classification and terminology of these forms is yet provisional, but they all multiply by transverse division into two similar daughter-cells, which either become immediately isolated or remain connected so as to give rise to filiform or tabular colonies of cells. When found in colonies they are known as *zooglæa*. They usually grow in nitrogenous infusions which they decompose. The researches of Pasteur and others render it tolerably certain that putrefaction of nitrogenous bodies is dependent on bacteria, and the fermentation of non-nitrogenous substances upon yeast-fungi.

Professor Thome, of Cologne, says: "When water which contains living bacteria is evaporated, a great number of these organisms are carried into the air, and in particular, the most minute globular forms, the *micro-bacteria*. The germs of bacteria which, in consequence, rise into the air whenever putrefying fluids are evaporated, are carried down everywhere by rain, are sucked in with the air in breathing, and hence become causes of putrefaction in all nitrogenous substances exposed to air, since the vitality is not lost in the atmosphere."*

* Thome's Structural and Physiological Botany.

In judging of the actual relation of bacteria to disease, it is very important to discriminate between those diseased conditions which provide a habitat for these organisms, and the effects produced by the fungi themselves. It is just here that so many elaborate experiments and observations are lacking. The old fallacy, "*Quod hoc, ergo propter hoc*," is often repeated in pathology.

Dr. Stimson, writing in the *Popular Science Monthly*, of these organisms, says: "It is probable that their *role*, so far as disease is concerned, is as follows: while they have no power in themselves to excite disease, they are able to absorb the poison (ferment) which is capable of producing it, to fix it, as it is termed, and to give it up to any tissue with which they may come in contact, acting thus as carriers of contagion."

Wagner, in his General Pathology, declares that "no two observers have, concerning the same disease, reached the same results; the specific fungus of one is disavowed by another, etc."

Dr. Beale, in his "Disease Germs," considers degraded microscopic particles of animal tissues far more influential in the product of disease than vegetable germs or bacteria. He says: "In every part of the body of man and the higher animals, and probably from the earliest age and in all states of health, vegetable germs do exist. These germs are in a dormant or quiescent state, but may become active and undergo development during life should the conditions favorable to their increase be manifested. There is not a tissue in which these germs do not exist, nor is the blood of man free from them. They are found not only in the interstices of tissues, but they invade the elementary parts themselves. Multitudes invest the old epithelial cells of many of the internal surfaces, and grow and flourish in the very substance of the formed material of the cell itself. In very many different forms of disease these germs of bacteria, and probably of many fungi, are to be discovered in the fluids of the body, but the evidence yet adduced does not establish any connection between the germs and the morbid process." Dr. Beale insists that

degradation in power of the living particles, or bioplasts, of animal tissues, is usually associated with a disposition to multiply rapidly at the expense of the pabulum in which they are found. "The actively living, degraded bioplasm may retain its vitality though removed from the living body, and it may grow and at length destroy other living organisms to which it gains access."

Pathological histology largely corroborates these views of Dr. Beale. Inflammation and its products, mucous, serous, and purulent catarrhs; fatty, amyloid, and celloid degenerations; pigmentary, fatty, and calcareous infiltrations, and the various neoplasms, innocent or malignant—conditions which make up almost the entire catalogue of diseases—need no bacterium, nor foreign *materies morbi*, to account for them. The virulent poison of dissection wounds cannot be ascribed to vegetable germs, since it is most virulent shortly after death of the subject of dissection, and when putrefactive decomposition has taken place, and bacteria swarm, the real contagious virus is dead. Such is the vitality of some forms of degraded bioplasm that they will not only multiply on mucous surfaces, but live long after their removal, as in purulent ophthalmia, gonorrhœa, etc., so that they may be transported from place to place, and still retain their multiplying power. The active poison of syphilitic virus may remain dormant for years, yet these particles of animal matter greatly resemble each other. Neither by form, chemical composition, nor other demonstrable properties, can the vaccine germ be distinguished from the smallpox germ, nor the pus germ from either. All are like the minute particles of the bioplasm of blood, from which they differ so remarkably in power.

As these minute particles of bioplasm often appear only as dots under the best glasses, and with a magnifying power of one thousand to five thousand diameters, it is not surprising that they cannot be distinguished from each other. It is also quite probable that what are called *micrococci*, *microzymes*, or *globular bacteria*, have often been confounded with particles of animal bioplasm.

The report of Dr. Sternberg to the National Board of Health on a fatal form of septicæmia in the rabbit, produced by the subcutaneous injection of human saliva, and many similar experiments and observations, may be accounted for by the toxic influence of degraded animal bioplasm, quite as well as by the power of the coincident bacteria, whose function seems rather to be the removal of the degraded tissue by putrefactive decomposition.

That decomposing animal tissues and small particles of the same may be mistaken for bacteria, or vegetable micrococci, has been forced upon my attention many times during my microscopic studies, now covering a period of more than thirty years; but in 1881 an examination of the blood of eighteen cases of beriberi, admitted to the care of Dr. Hebersmith, in the Marine Hospital of San Francisco, from the Brazilian steam corvette *Vital de Oliveira*, did much to confirm that opinion. My notes of this examination, with illustrations, are published in the Annual Report of the Supervising Surgeon-General of the Marine Hospital Service, for 1881. In these cases the white corpuscles of the blood seemed first to swell, become granular, and disintegrate; then the red discs first shrink, then swell, and break into straight or curved rods or granules. The granules and rods could not be distinguished from globular and rod bacteria, even with objectives capable of the very finest work. In six of the cases the granules were found associated in colonies, like sarcinæ, or the zooglæa stage of bacteria. If I had not seen, in quite a number of instances, the actual process of formation of these rods and granules from the red and white blood-discs, I should have concluded that colonies of micrococci had developed in the blood, leading to its disorganization. The *experimentum crucis* seemed to be that the treatment was based upon the microscopic examination, and consisted of ferruginous tonics and careful hygiene, and was successful in every case.

THE INCREASE OF INSANITY, AND THE COMMITMENT OF THE INSANE.

BY E. T. WILKINS, M. D.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: You would consider it but a dream of a lunatic if I should announce to you that in a hundred years from the present time, one-third of the inhabitants of California, if not of the world, would be insane; and traveling along the course of time a century farther, that the proportion of sane persons would be so small in comparison to the insane, that they would be confined in the asylums of that day in consequence of their great peculiarities when compared with their more numerous fellow-beings on the outside.

Of course, I will not venture upon so startling a prophecy, but will furnish you with some facts and figures that *might* justify such a conclusion.

In 1860, the population of California was 380,015, and the number of the insane, 456; 1 to 833 of the whole population.

In 1870, the population was 560,247, and of the insane, 1,146; 1 to 489.

In 1880, the population was 864,686, and of the insane, 2,254; 1 to 383.

If the ratio of increase of the insane to the sane should continue in the future as it has been in the past twenty years, the proportion of the insane to the sane in the year 1900, would be 1 to 155; in 1920, 1 to 69; in 1940, 1 to 27; in 1960, 1 to 12; and in the year 2000, 1 to 2.

It is fair to conclude that one-half of these would be men, and the other half women; hence, every child born after that

time would probably have an hereditary taint in his constitution, and his chances of becoming insane altogether probable.

To carry these calculations a little farther—and it is said "figures will not lie"—we will soon arrive at a period when sanity would be the exception rather than the rule.

Nor is this condition of sanity confined to California alone. From a recent report of J. Norton Manning, M. D., Inspector General of the Insane in New South Wales, I learn that the proportion of insane persons was, on the first of January, 1880, 1 in 367; and from a report of R. M. Bucke, M. D., Medical Superintendent of the Asylum for the Insane, London, Ontario, published this year, I learn that the number of persons of unsound mind, who require the protection and support of the State, in that province, very nearly doubles every ten years.

Now, the facts are before you; either insanity is frightfully increasing, and will eventually destroy the human race (unless some measure can be devised, some remedy applied, to arrest its progress), or it has become fashionable to pronounce as insane, various classes of persons hitherto only considered odd, eccentric, vile, foolish, irritable, dissipated, or weak in mind from the natural effects of old age and physical decay.

If the first of these propositions be true, that insanity is very nearly doubling its numbers every ten years, it is the most appalling question that confronts us to-day, not excepting the Chinese invasion that now curses our fair State; because these are at least industrious, ingenious and self-sustaining; while the insane must be cared for and maintained from the treasury of the Commonwealth.

Upon the medical profession, more than that of the law, or the makers of the law, devolves the duty, the perhaps impossible task, of solving this problem; and I call your earnest attention to it, that you may put on your "thinking-caps," and make such suggestions as to you may seem wise and proper.

Dr. Bucke, from whose report I have above quoted, in discussing this question under the head of the "prevention of insanity," says: "Not only in Ontario, but also in the other Provinces of Canada, in every State in the Union, and as far

as I know, in every country of the civilized world, is the same increase to be observed in a greater or less degree."

Year by year the number of lunatics, imbeciles, and idiots, requiring to be supported and cared for, is rapidly increasing.

What is to be the end of this state of affairs, and where is a remedy for it to be found? Are we to build one asylum after another, indefinitely, and be content to let the earnings of the country support forever this vast and constantly increasing accumulation of disease and misery, or shall we do something, or try to do something, to prevent its occurrence?

Comparatively few States and provinces in North America provide accommodation for all their insane, and avoid, or seem to avoid, by not taking it up, the heavy burden that we carry. But in these sections of the country the lunatics either remain at home, each one paralyzing, by his or her presence, the energies of an entire family, or else they are sent to the county poorhouses; and in either case the cost of their maintenance to the country at large is as great, or greater, than with us, where sufficient asylum accommodation is provided for them all. No State can really avoid this burden by simply refusing to see it; all have to bear it, each in its own way. The hope that anything material will ever be done towards decreasing the aggregate amount of lunacy by the cure of those afflicted with this disease, if it still exists in any minds, should no longer be encouraged.

"Insanity is essentially an incurable disease. It is true that an outbreak of mania or melancholia is not by any means always permanent, and does not even necessarily recur; but the permanence or recurrence of the disease, or the non-permanence or non-recurrence of it, depends not nearly so much upon the treatment to which the patient is subjected, as it does upon his or her original constitution. So that, in the case of insanity, the "cures" are nothing more than recoveries, more or less permanent, occurring in cases where the original predisposition to the disease was not sufficiently powerful to subjugate once for all the mind of its victim."

"It is not true of insanity alone, but it is true of nearly all diseases, that "cure" means spontaneous recovery, more or less aided by management, but seldom, if ever, actually brought about by medical interference. To look, therefore, for any material decrease of insanity from the cure of individual cases, is to look for something which will never be found."

But an unsuccessful search for one thing often results in the discovery of something else, and the thing found may be far more valuable than that which was sought. So looking for a key to the future, the astrologers found astronomy; so looking for the philosopher's stone, the alchemists found chemistry; and so looking for cures, the medical profession is slowly learning the laws of health and disease, and in the end we shall discover something far better than modes of curing disease—we shall learn to prevent it. But in order to learn this, in the case of any particular disease, it is necessary in the first place to arrive at an understanding of the nature of the disease itself, and especially is it necessary to understand its cause or causes. No enlightened man will deny that, if insanity was better understood, a very large percentage of the cases of it might be prevented. But while it is true, and while it is also true that the civilized world to-day is supporting hundreds of thousands of lunatics at an annual expense of a great many millions of dollars, it is also true that it is making no systematic attempt to relieve itself of this enormous cost, and what is still more to be considered, this almost infinite mass of suffering.

This is certainly an anomalous condition of things for a generation that claims, above all things, to have "common sense," and to be "practical." It is also true that we do not utilize, in the way of the prevention of insanity, all the knowledge that we already have. We know, for instance, that insanity is remarkably hereditary; that the children of insane parents, or even the children of those in whose family insanity exists, are very liable to become themselves insane. This knowledge, so far, has produced little practical result. Such persons still marry and bring up families, being restrained

neither by their own conscience nor by any interference of the State, which issues marriage licenses impartially to those who may reasonably expect to bring up healthy children, and to those who are morally certain to produce diseased offspring. The object of marriage is to produce men and women to carry on the work of the world, and not to produce syphilitic, tubercular, and insane persons. We call ourselves civilized and religious, and claim to have common sense, yet our governments license and our churches bless unions, the offspring of which are foredoomed to idiocy, imbecility, lingering illness, or premature death.

I don't mean to say that the church and State combined could prevent children being born of the class of people of which I speak; neither can they prevent altogether murder, theft, or prostitution; but they do not sanction these, and neither should they countenance what is as bad as any of these —that is, the bringing into the world imperfect and diseased children, who must necessarily be, all their life, wretched themselves, and a burden to the world at large. Nor do I say that any special laws should be made against such unions as I speak of. All I claim is that the community, through its government and churches, should cease to countenance what is notoriously wrong.

No marriage license should issue, nor marriage ceremony be performed, except in cases where there was a reasonable prospect of healthy issue proceeding from such marriage; and there is no doubt whatever in my mind, that either by special enactment, or by the force of public opinion, the reform here contemplated will at last be effected, and disease of all kinds be, through it, enormously reduced in amount. In the meantime, while we are waiting for direct action by the State, something should be done to enlighten and caution the whole people on this point. For this purpose, the powerful influence of the voice of the clergy of all denominations ought to be invoked; no worthier subject could occupy their talents, and in no way could their energies be more usefully employed than in combatting this giant evil. And it lies directly in

their path; for in the case of insanity, its primary causes, nearly all consist in violations of the moral law. Still more might be done, and surely at last will some day be done, through the educational institutions of the country. If anything in the world is worth teaching, certainly some knowledge of the nature, causes, and means of avoidance of preventable diseases is so, and there is no doubt that in time, the schools will see their way to include some such course in their curriculum. By means of these two agencies—and a third, as powerful as either of them, namely: the press—something material in this direction will no doubt at last be done, and it seems to me a matter of wonder, that more has not been done already. But, in the meantime, no State in the world is doing its duty (and duty here, as in all other cases is synonymous with enlightened self-interest), in the case of insanity, in investigating those very matters which it is so essential to have the people taught, *i. e.:* the cause, nature, and avoidance of this disease. Speaking broadly, the State holds in its asylums nearly all the lunatics of the country, and it therefore controls more or less directly, all original investigations into disease. But at present the only persons who have access to the patients, have, by their positions, so many and such onerous duties assigned to them, that it is impossible for them to do anything material in this direction. Every asylum ought to have on its staff an able and thoroughly educated man as pathologist, who would be provided with all necessary appliances, and whose sole duty it would be to study insanity in all its aspects; through its literature, by observation of the insane during life, and especially by microscopic examination and other means after death. The medical superintendent would, of course, assist in all these investigations, and the result of them would be embodied in the annual and other reports of the different institutions; the discoveries made and the conclusions arrived at in one asylum, would be checked and compared with those reached in others, both by the interchange of reports and at annual meetings.

"Through the press, through the schools, and perhaps also to some extent through the pulpit, the results arrived at should, as rapidly as possible, be communicated to the people at large, and I believe it is safe to say that through the means indicated, many years would not elapse before each State might be saved, even in money, far more by the prevention of lunacy, than the means employed would have cost. And in the end I believe the good produced would be simply incalculable. The interests at stake are enormous; the evil great, pressing, and every year increasing; at present no means are being taken to meet and combat it. Surely, we should do something more than bear it passively. To bear patiently inevitable ills may be heroic, but to bear patiently ills that by the proper exercise of our intelligence and energy might be avoided, is the reverse of heroic. We know enough at present to avoid a large part of all the insanity that occurs, and it is undoubtedly in our power to learn how to avoid nearly all of it. The question is: Shall we try to learn, and having learnt, shall we act upon our knowledge, or shall we passively bear this terrible evil, for want of manliness to rise up and face it?"

But even if it be possible in a measure to prevent insanity by any or all the means suggested, or that may be devised by human wisdom and forethought, a generation will have passed before any material change can be effected; and the object of this paper is to call your attention to the present and rapidly growing number of the insane in this State, and our means of caring for and maintaining them.

There are two asylums in this State, each containing about eleven hundred patients, both not only full but crowded to such an extent that proper classification has long been impossible. And yet an average of nearly two for each day in the year are committed from various parts of the State and sent to us, as if our space to accommodate them was without limit, and our beds without number.

This brings us to the consideration of the other branch of the subject. Has it become fashionable to commit persons to our asylums who heretofore have not been considered insane,

and were otherwise disposed of? And if so, cannot this, in some degree at least, be checked by a more strict observance of the laws as they now exist, with a few salutary additions? We not only receive persons in the face of the law, but almost without a history to guide us in their early treatment.

The welfare of the individual and the safety of the public are the two broad considerations that underlie every commitment of a person to an asylum for the insane, and when such interference with personal liberty becomes necessary, it is due alike to the unfortunate patient and those who will be called upon to take care of and treat him, that every material fact should be clearly set forth in the commitment, or rather, in the certificate of the physicians who examine him. It is not enough to state the conclusion, but the reasons for the conclusion. What information can be derived from such histories as these? I submit to you:

1—Ah Loi Lock.
Age, 30 years.
Evidence of the presence of insanity—His general appearance.

2—C. J. Sullivan.
Age, 8 years.
History—He is vicious; will kill cats and dogs, and has done so.

3—G. R. Y.
Age, 60.
History—Is disposed to wander away from home; homicidal disposition; passes his excretions *voluntarily!*

4—Mary R.
Age, 33.
History—Filthy in her habits; destroys clothing.

5—B. F. H.
Age, 39.
History—Is noisy; wanders about at night.
Cause of insanity unknown.
Class—Mania.

6—J. M.

Age, 44.

Evidence of insanity—His manner and conversation.

With the exception of a few counties where full histories accompany patients sent to the Napa Asylum, the above are fair specimens of the histories that accompany them. It is the exception where any allusion is made to the physical condition of the patient, and yet, in the case of B. F. Hobby (No. 5), the patient was admitted at 7:30 P. M., and died at 3:30 the next morning. The autopsy proved that one lung was completely hepatized, while large cavities existed in the other. No wonder, then, that he should have been incoherent, noisy, and restless; but it is a wonder why such a patient should have been sent from a county hospital to an asylum for the insane, and more surprising still that no notice of his physical condition was taken by the physicians who examined him. Had they paid attention to this part of their duty, they would have found abundant cause for his delirium, and a sufficient reason to have refused to commit him.

The laws which govern the commitment of the insane, in this State, are certainly broad enough to cover every case requiring confinement in an asylum, and clear enough to be understood by any person of sufficient intelligence to sit upon a commission "*de lunatico inquirendo.*"

Among other things, the law provides that (Section 18), "no case of idiocy, imbecility, harmless, chronic, mental unsoundness, or acute *mania a potu*, shall be committed to this asylum; and whenever, in the opinion of the resident physician, after a careful examination of the case of any person committed, it shall be satisfactorily ascertained by him that the party has been unlawfully committed, and that he or she comes under the rule of exemptions provided for in this section, he shall have the authority to discharge such person so unlawfully committed, and return him or her to the county from which committed, at the expense of such county."

And yet Wm. H. Mitchell, one of the cases recently sent to the asylum, is pronounced by the commissioners who signed

his commitment to be "congenitally defective," and classed as an "idiot."

Unlike the laws of other countries, and all the other States, our laws do not invest the Superintendents of the Asylums for the Insane with any discretionary powers whatever in the reception of patients; and while it directs them to return such illegally committed persons "to the county from which committed, at the expense of such county," it makes no provision for its collection, and does not even provide that such persons may be refused admittance a second time after having been discharged.

The law also provides that (Section 20), "non-residents of this State conveyed or coming herein while insane, shall not be committed to or supported in the Napa State Asylum for the Insane; but this prohibition shall not prevent the commitment to and temporary care in said asylum of persons stricken with insanity while traveling or temporarily sojourning in the State, or sailors attacked with insanity upon the high seas, and first arriving thereafter in some port within this State." Yet time and time again this section has been violated. Persons have been sent from Mexico, Central and South America —occasionally from other States of the Union—for the purpose of having them kept and treated in the Napa, and doubtless the Stockton Asylum, and generally at the expense of the State. Like Section 18, this section is also of no avail, there being no power to enforce it.

It is earnestly hoped that the next Legislature will make some provision for the various classes prohibited by Section 18, from entering the Asylums for the Insane; unless it should be deemed more in accordance with sound policy to erect a Central Hospital for the Insane for San Francisco and the other bay counties, to be located on the peninsula at some point most accessible to the great city that supplies so large a proportion of the insane of this State. Such an institution is now greatly needed, and its establishment would enable the present asylums to accommodate the insane from the interior counties for a decade at least.

THE CRIMINAL INSANE.

In my report to Governor Haight, in 1871, page 161, I strongly recommended the construction of a hospital at the State Prison, for the accommodation of the criminal insane, giving at some length my reasons therefor. I have had no cause to change my opinion since that time, but on the contrary, the experience of each succeeding year adds emphasis to the views then expressed. Dr. Shurtleff, of Stockton, has expressed similar views, and indeed I know of no superintendent of an asylum for the insane who entertains different opinions upon the subject. Such a hospital can be built by convict labor, at comparatively small cost, and should be commenced without hesitation or delay.

But without some relief from the pressure under which the present asylums are now groaning, it will be necessary to discharge patients known to be harmless, to make room for those supposed to be dangerous to the public and to themselves, since "two bodies cannot occupy the same space." *

* NOTE.—Since this paper was prepared, G. G. Tyrrell, M. D., President of the Medical Society of the State of California, in his address to that Society, has touched upon the subject of a hospital for the criminal insane in a clear, able, and satisfactory manner, and I cordially indorse all that he has said upon the subject.

REPORT ON MEDICAL EDUCATION.

By A. W. SAXE, M. D.

MR. PRESIDENT, AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: It is said—with how much of truth the members of this Society can each for himself determine—that no one ever reads a report on Medical Education. At each return of our annual meeting, some self-sacrificing member produces a lengthy report on this most important subject. It is read by title, and referred to the Committee on Publication.

In view of this state of affairs, the Annual Report, in fact, partakes more of the character of a perfunctory performance than of any necessity or demands of the Society. However, in obedience to our time-honored custom, I offer for your consideration a few thoughts, which I have no doubt have suggested themselves to your minds frequently in your cogitations on that subject.

Who are the objects or subjects of Medical Education?

No doubt, all of us are from day to day imbibing medical knowledge. Our judgments are maturing; our perceptions are quickened; we observe new facts; we are better physicians and surgeons this year than last; we have let go many fallacies, and have acquired expertness in diagnosis, and in the application of remedies. In short, we are expected to be, and I hope are, wiser and better physicians than we were a year ago.

We cannot ignore the fact that, with physicians, as with the rest of mankind, all are born into the world in utter ignorance of everything which constitutes human knowledge; and only

little by little, through the avenues of our senses, do we acquire the small amount of knowledge required to enable us to get through the world in conformity to the laws of modern civilization.

When we reflect that the special department of human knowledge, known as Medical Education, is the work of the best years of a life-time, we need not wonder that those not thus specially educated remain in their pristine ignorance, notwithstanding the highest culture in other departments of human knowledge. The affluent, study their personal pleasures; the great mass of mankind, being mostly occupied in gaining a livelihood, securing to themselves and families the simple elements of food and clothing, have neither the time nor the facilities for the acquisition of medical knowledge. Hence the perpetual demand for educated and expert physicians and surgeons. True, through the philanthropic labors of many of our fraternity throughout the civilized world, but more notably in the United States of America, the adult masses of our population have acquired some knowledge of the principles of human physiology and hygiene, which is so far invaluable, and removes the unreasonable demands and expectations of the mass of our population upon the medical fraternity.

The chief object of medical institutions and teachers is the special education of young men who manifest a desire to make this department of human knowledge a practical profession, a business livelihood.

The order of mental organization of medical students is various—and although fully as good as in any other of the professions—yet affording the extremes of mental and physical endowment—the utmost limits of human success. Some are physically strong and aggressive; others weak and retiring. Some of great, others of small intellectual grasp. Some acquire knowledge easily and quickly; others master their acquisitions by slow and laborious approaches. Some will conquer success and attain eminence. Some achieve professional

respectability, and others will fall by the wayside. But as there are no royal families among us, so there are no royal roads; and the practical question is as to the best methods of communicating a knowledge of the science of medicine, and the art of practicing it --to the average medical student—and the length of time required. As to the truths communicated, they should be as nearly as possible--in the present state of human knowledge--unmixed with error

It has been said that a brilliant theory has been of incalculable benefit to science. It may be admitted that there is some truth in the statement, provided that the mind of the theorist is truthful, and open to conviction. But, as is too often the case, the theories die with the theorist; the pride of his greatness is humbled, and both pass away to the obscure pages of history, or to oblivion.

The reflections indulged by one of our most eminent physiologists, J. C. Dalton, on Sir Charles Bell's theory of the nervous system, as well as the speculations of Buffon, in his "Natural History," and that of Sir Charles Bonnett, in his "Scale of Being," may be profitably entertained by the teachers of to-day.

"The value of the experimental method in medical science cannot be measured by the direct results of any particular discovery. True, these discoveries are often of the greatest importance, and increase greatly our fund of medical knowledge. They possess, moreover, a vitality which distinguishes them in a marked degree from the ephemeral products of scientific hypothesis. When a hypothetical system has served its time, it disappears, and is replaced by another and different one. But the knowledge derived from experiment remains serviceable long after its novelty has passed away.

"The experiments of Galen, on the recurrent laryngeal nerves, and upon the functions of the arteries as blood vessels, are as conclusive now as when he first made them, and retain to this day their full value. They have lasted seventeen centuries, and have survived during that time all the fluctuating

medical systems of fluidism, solidism, animism, vitalism, archeism, and iatro-mechanism. The information they imparted was a reality, and was neither destroyed nor impaired by the lapse of time. The benefits of experimental discovery extend far beyond their immediate limits.

"When a new fact has been established in anatomy and physiology, it is impossible to say in advance what bearing it may have on other facts not yet discovered. In the history of medicine there are many instances of curious observations which remained imperfect and barren until subsequent discoveries invested them with unexpected importance. It is evident that Galen's detection of the arterial blood current in the second century was a necessary preliminary to Harvey's complete discovery of the circulation in the seventeenth. It is almost certain that genuine investigation, however isolated at first, will produce some time or other its legitimate fruit. But to secure this object there is one essential requisite, which is, that experimental research be followed and cultivated for its own results, whatever they may be, without demanding immediate returns of a kind that can be forecast, and with an entire confidence in the substantial value of this method, which has always been and always will be the only source of permanent improvement in medical science."

The medical teacher who has a pet theory is an unsafe instructor, inasmuch as more or less of such instruction must be eventually abandoned; and such abandonment involves so great a sacrifice of pride of opinion, implying imperfect judgment and professional fallibility, that a large percentage of medical graduates maintain their errors through life.

It is of the utmost importance, that while medical students are acquiring a knowledge of the science of medicine, which shall include all that is known of the most successful methods of alleviating human suffering and prolonging human life, that a love of and devotion to experimental research should be inculcated; that the voice of the people is not always the voice

of God; that demonstrable truth may be rejected for centuries, and errors as fondly cherished.

The mills of the gods grind slowly, but finely. The vague theories of to-day will certainly share the fate of those of former centuries. The histories of exploded theories and fanciful systems, such as the *royal touch*, the *unguentum armarium*, the *tar water* of the worthy Bishop Berkeley, *Perkins' metallic tractors, hydropathy, homeopathy, laying on of hands, clairvoyance, and spiritism*, we are all more or less familiar with. But the medical student who has not a phenomenal memory should read, with most devout spirit, once a year, that unmatched medical classic, by Professor O. W. Holmes, entitled "Currents and Counter-Currents."

These fallacies have had their day. Others will succeed them for years to come. As long as human cupidity remains, and there are hobbies to ride, there will be plenty of riders. But to the philosophical mind truth is more valuable than gold, and a good conscience than rubies.

There are medical colleges in nearly every State of the Union. There are at present about twelve thousand medical students attending these colleges. The number has more than doubled in the last ten years. There are not far from twenty-two hundred in the State of New York; in Ohio, fourteen hundred; in Pennsylvania, twelve hundred; Illinois, one thousand—nearly one fourth being homeopaths; Missouri and Kentucky, about seven hundred; Maryland, Michigan, and Tennessee, each about five hundred; Massachusetts, four hundred. Of this great number of medical students, those having received a classical education is very small. The percentage of college-bred men in Harvard is nearly fifty; that of the Kentucky schools, zero; Missouri, two; New York, seventeen per cent; Illinois, sixteen; Pennsylvania, eight; Ohio, six per cent.

The absence of a critical knowledge of the ancient languages does not necessarily prevent a very full knowledge of medical science, and a successful practice of the arts of medicine and

surgery, but has much to do with literary success in scientific writing, as well as social and professional standing in the scientific world. Among the preliminary requirements of candidates for medical instruction, is a rudimentary knowledge of the languages of scientific nomenclature. It may be safely declared that few men have ever succeeded as medical authors or reporters of scientific investigations who were not more or less complete classical scholars, and only such can excel as leading writers in the medical profession. It is true that all cannot excel in the field of medical literature; but the profession is so completely interwoven with the social and political affairs of our popular government, that scholarly medical men are needed in every community, and are sure of just popular appreciation in proportion to the completeness of their education and practical abilities.

The various departments of medical instruction in our best medical colleges are represented by faculties numbering fifteen to twenty in each of these institutions. The time allotted and required for the satisfactory stuffing of the average medical student is, in a few, four years; in most, only three years. It is painfully obvious, to any thoughtful medical practitioner, that this length of time is too short, and nothing less than a phenomenal mind and memory can master the principles and details of medical science and art in this length of time. The medical graduate, when entering upon the duties and responsibilities of medical practice, too often finds himself the prey of older physicians, and to his own sorrow and disgust, that he distrusts his own qualifications, and for a greater or less length of time is obliged to occuply the second or third rank in the profession.

A practical knowledge of any of the trades, arts, or sciences, requires a constant drill for years, and good business qualities are as valuable to the physician as to the merchant or mechanic. How can we reasonably expect such phenomenal developments in the short space of three years? The expectation is obviously unreasonable, and, in fact, a cruel mistake. The suggestion

has been made that all three-year medical colleges be indicted for cruelty to animals, both to the half-fledged doctor and his patients.

The ordinary routine of medical studies ending in the degree of M. D. is supposed to furnish a guaranty that the recipient is qualified to practice medicine and surgery. But the history of many of our most eminent medical men would indicate that something more is needed. A knowledge of business affairs, and a courage that would guarantee success in any other lawful vocation, are also indispensable.

It was said of one of our first American scholars, naturalist and poet, J. G. Percival, that after having taken his degree of M. D., he essayed to practice medicine in a quiet New England village. Two successive cases of fatal cholera infantum so filled him with disgust that he never afterwards wrote a prescription professionally, but devoted his life to literary and scientific pursuits. Other equally conspicuous cases have occurred in our country, signifying that fighting battles is essentially different from a dress parade.

Candidates for appointment to the United States Marine Hospital service are examined in conformity to regulations adopted by the Naval Board of Examiners. They are mostly graduates of our American medical colleges, and are passed or rejected in accordance with the completeness of their medical education and practical knowledge of medicine and surgery.

The Annual Report of the United States Naval Board of Examiners for 1880, exhibits the results of the labors of the Board for the five years preceding:

YEAR.	Number of candidates.	Number of branches examined.	Passed.	Rejected.	Percentage of rejections of all examined.	Number invited to appear for re-examination.
1875..	11	10	8	3	27 3-11	0
1876..	13	10	8	5	28 6-13	0
1877.	18	10	6	12	66 2-3	38
1878..	11	10	3	8	72 8-11	35
1879..	29	10	6	23	79 9-27	52
1880..	23	10	4	19	82 4-23	43

Per cent of annual rejections, 66.

Candidates for examination are allowed a second application, but never a third. The list of questions embraced in the ten branches examined, are those every medical graduate is supposed to be familiar with. If the foregoing account of the examinations of candidates for naval surgeons is correct, and if these examinations are not unreasonably severe, then what must be said of the examinations of medical students at most of our medical colleges, where we have no accounts of rejections, and where sixty-six per cent of these graduates are rejected by the Medical Board of Examiners? We are warranted in the conclusion that these medical colleges, with all their parade of thorough instruction, furnish a product nearly two thirds less valuable than that required by the United States naval service. Is our commercial and industrial population less valuable than sailors and marines?

We are informed by the late journals that at the regular spring examinations for the positions of hospital interne in the various charitable medical services in New York City, that although there were more applicants than vacancies, yet the proportion of rejections was greater than in the examinations by the Naval Board of Examiners; in fact, many who were rejected by the Board of Hospital Examiners afterwards passed successful naval examinations.

It is a well known fact that many of our best educated men take post-graduate courses, and spend years under the personal instruction of specialists. Others go to Europe and attend

the clinics of eminent men in England and on the continent, and the outcome is always worth all the expenditure of time and money.

Students in the medical institutions of Britain and Ireland are required to have been under the tuition of competent teachers forty-five months, and pass two thorough examinations before receiving diplomas. The French medical schools require four years; German, four years—examinations yearly, and very thorough. In the Austrian schools the full term extends over five years, or five winter and five summer terms or semsters.

The mere lapse of time, however, be it three or five years, in the perfunctory study of medicine, imperfectly prepares the student for the duties and responsibilities of practical professional life. What the kindergarten is to infancy, the medical school should be to the adult student. Object lessons are far more instructive than abstract teaching. Our organs of perception are far more productive of ideas and convictions than those of reflection. We more commonly imitate than originate or invent; so that the best teachers must also be the best illustrators of all the details of clinical medicine and surgery.

The science of medicine has made such rapid strides within the last decade, that there is no longer any doubt of the necessity of specialists. The general practitioner is seldom an expert ophthalmologist and aurist, or gynecologist. It may be said that the more nearly perfect a man becomes as a specialist, the less valuable he is as a general practitioner, and vice versa. As there must be special pathologists and surgeons, so there must be specialists in chemistry, histology, and microscopy, whose verdict in obscure questions in medical jurisprudence shall represent the ultimates of human knowledge in these departments.

In medical specialties, as in general medical and surgical practice, there is a vast difference in individual capacity and ability. Correct medical judgment, or wisdom, accompanied by skillful manipulations, is a rare combination, even among

specialists. And we discover the limits of human possibilities and the imperfection of human efforts too often to expect infallibility in any of the departments of medical art. So that with the most laudable endeavors to occupy the foremost rank in the profession, we should cherish humility and forbearance; remembering how much we owe to the obscure devotees of science, who have passed away with the busy scenes of former centuries, into the ocean of oblivion.

Who of us is assured that he will leave scientific or professional mementos, that shall survive a single generation? Our highest aspirations should be the transmission of the invaluable truths we possess to those who in a few years are to occupy our places.

REPORT OF THE COMMITTEE ON MEDICAL LEGISLATION.

BY IRA E. OATMAN, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: Absence of State legislation since the last annual meeting, has made the duties and responsibilities of your committee comparatively light. The report on medical legislation at the last session of this Society brought fully before you the actions and decisions of the Courts (not juries) in favor of the existing law "to regulate the practice of medicine in California." The report also contemplated, at this session, thorough deliberation by the Society on the subject of a new law to supersede the old one, which fact has been recently brought before you individually, by postal circulars. Being now fully prepared to act, the subject presents itself in form of two propositions before us, viz:

Shall the Society, at this session, agree upon and adopt a bill for a new law which will secure the combined and individual influence of its members to aid in its passage through the next State Legislature; *or*, shall we decide to unitedly oppose any change in or repeal of the existing law—or any substitute therefor—pending further decisions of the Supreme Court as to its validity and constitutionality? If the first proposition be adopted, I beg to quote from the last annual report on the subject, viz:

"The law should be brief, and in language so plain and forcible as to admit of no misconstruction. For the present, it should admit all graduates in good standing, from reputable chartered colleges, authorized to confer the degree of Doctor of

Medicine. It should provide for Examining Board or Boards, appointed by the State Society or Societies, or the Governor of the State—the former preferred. Druggists and apothecaries without a license to practice should not be allowed to prescribe for invalids. Identity of person and genuineness of diploma should be verified by oath or affirmation, and proof, if required, with punishment for false testimony. All licenses should be of record in the county where the holder resides. All persons applying for a license should pay a fee. Applicants may be rejected, or licenses revoked, on account of unprofessional conduct. The right of appeal to the State Society should be sacred. Practicing medicine and surgery should be defined. Itinerant venders and practitioners should be taxed. Severe penalty for non-compliance with the law should be enforced. Compensation to the Examining Board, or its Secretary, cannot be drawn from the State Treasury, unless such Board or Boards be 'under the exclusive management and control of the State, as a State institution.' (See Article IV, Section 22, of the State Constitution.) To secure such aid, the State must have power to appoint the Board. Without a license to practice, no fees should be collectible, and if paid, should be recoverable by law. Medical *experts* should be paid a fee in trials for murder, and other cases."

I would add that the last named would require a separate Act, or be named in the *title* of the bill. (See Article IV, Section 24, State Constitution.)

A law should be passed, with separate title as above, in regard to persons who have *color blindness*, whose duties relate to colored signals in trade, travel, and commerce, whether the principles in relation thereto are or are not at present regarded. A motion offered by Dr. W. E. Briggs, and adopted at the last session, as amended, reads as follows, viz:

"In view of the practical importance of color blindness and acquired myopia, considered by Dr. A. M. Wilder, in his report on ophthalmology, I move that the Committee on Legislation be instructed to promote appropriate legislation on these sub-

jects, and to further this end by such extracts from this report as to them may seem desirable."

As the Legislature has not been in session since that time, and as the present Committee will soon be out of office, and their successors be appointed for the ensuing year, the subject is respectfully referred back to the Society for further action, with the recommendation in favor of such legislation.

Criminals tried for murder and other felonies are popularly defended on the grounds of "insane impulse," "emotional insanity," "reasoning mania," etc., and too often successfully. As experts, we are compelled to testify to the emotional insanity of criminals—that, in fact, the crime was committed under insane impulse, and yet the person perfectly cognizant of the difference between right and wrong. Under existing law, the criminal is sent to the asylum for the insane, or set free; in either case, it may be, at some future time to repeat the crime, or commit a graver one. At least, *one* such case has recently come under my own observation in Sacramento. The *principle* of the law is at fault in this case, and should be so changed or re-enacted as to punish all such criminals, just the same as if no such defense were set up in their behalf. Such law, duly administered, would "put a stop" to all such acts of madness, or extreme anger, amounting to "emotional insanity;" whilst the obvious maniac, knowing nothing of *right* or *wrong*, should be dealt with accordingly. Imprisonment for life should be the mildest punishment for murder under emotional insanity; whilst other felonies should be punished in proportion to their magnitude.

I believe the above represents, though imperfectly, the prevailing sentiments of the profession, including eminent neurologists and writers on mental diseases, as Maudsley, Hammond, and others.

Our *State Prisons* need special departments for the safe keeping and punishment of all such criminals. Our asylums need the same for epileptics, imbeciles, and weak-minded persons.

In regard to the enforcement of the law during the past year, the apparent apathy, on the part of the profession and others, awaits further decision or decisions of case or cases pending in the Supreme Court. The constitutionality and validity of the *law* once thoroughly established by that high tribunal, the enforcement of its provisions will easily follow, only a matter of time intervening, until *resistance* thereto will drop out of sight—like the mirage, vanish away.

Several others of the Western States have recently passed laws regulating the practice of medicine and surgery, with a very imperfect law in Washington Territory. This plainly shows that the public mind, as a whole, is gradually becoming reconciled to such lawful regulation, and that the best sanitary interests of the whole community are and will be best subserved through the immutable principles of science, rather than through the fraudulent cupidity by which health is extensively jeopardized and life imperiled.

As numerous bills will doubtless be presented at the next Legislature relating to the practice of medicine, to subserve *special* interests, and as a bill for a new law, to supersede the existing law, approved and adopted by this Society, would, by virtue thereof, carry with it superior prestige—have higher claims upon the members of our choice in both houses of the Legislature—it is important that this subject be considered as early as possible at this session, and that decisive action be had in relation thereto. Whilst it is hoped that all will abide the decision of the Society, to bring the subject before you for speedy action, I *move* that a committee of five be appointed to prepare a bill for a new law regulating the practice of medicine and surgery in California, and that said committee report to this Society at eleven o'clock to-morrow; and that their report shall have precedence, as a special order, for that hour, for consideration.

SUPPLEMENTAL REPORT ON MEDICAL LEGISLATION.

BY T. B. DEWITT, M. D., AND R. H. PLUMMER, M. D.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: In performance of our duty as members of the Committee on Medical Legislation, we desire to report for the consideration of the Society, the bill, with full amendments, published in the Annual Transactions of the State Medical Society for 1880–81, page 343.

We desire to preface the introduction of the bill, by stating: That since our last meeting, no session of the Legislature has convened, hence the old law stands upon our statute books, and it is obvious to every member of this Society, the necessity of presenting at the present session, some medical bill for our consideration. After one year's deliberation upon the published bill, and another year's experience with the old one, the Society should be able to frame and adopt a law that will supersede the present one. A law that will be acceptable to all, both to the profession and the public.

Then, upon this all important subject, let every member present to-day, come to the front and lend a helping hand, so that we may prove to the public at large, and to the coming Legislature, that, undivided we stand. Originating in this Society, with the indorsement of local sections, we feel certain that the result will be the enactment of the law at the coming Legislature.

(*See Bill.*)

INTRA-PERITONEAL SURGERY IN GYNECOLOGICAL OPERATIONS

BY C. CUSHING, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: The remarkable advances that have been made during the past thirty years in the successful treatment of the diseases peculiar to women, have been almost wholly surgical. This proposition is so self-evident that any statements in proof of it would seem superfluous, were it not that a considerable number of the profession believe that many of the surgical procedures now adopted by gynecologists are unwarranted, and who still advocate and practice the management of diseases of the uterus and ovaries by the expectant plan, or by the administration of medicine, relying upon the improvement of the general state to effect a cure of the local maladies.

While recognizing fully the advantages to be obtained by a strict attention to the constitutional condition, and also the fact that by good hygienic management a certain proportion of cases of uterine and ovarian disease eventually recover, the proportion is indeed small compared with those who recover under judicious local surgical treatment; and the means at present adopted by the specialists in this department of medicine are but the outgrowths of a need that has long been realized by those who have been brought much in contact with this class of cases.

That abuses have followed the introduction of new surgical operations, and that mistakes have been made occasionally, and that fatal results have ensued, is natural; but if this is

true, it is also true that the same statement holds good in regard to internal medicine in the treatment of general disease. Witness the changes in opinion in general medicine within the memory of many here present. To-day we bleed for nearly every disease on the list; to-morrow the lancet is discarded almost entirely from practice. To-day we deny our fever patients a glass of cold water; to-morrow we not only give them all the cold water they want, but we insist on putting them into a tub of it. And if, as occasionally happens, a gynecological operation is followed by a fatal result, it should not be forgotten that the administration of some of our most valuable medicines produce death when we least expect it.

During the past few years an operation has been brought to the notice of the profession that has attracted marked attention, and is known in this country as Baltey's operation, from the fact that Dr. Robert Baltey, of Georgia, was the first to perform it, and to advocate its value. It consists essentially in removal of the ovaries for other reasons than the existence of an ovarian tumor, and we have already had a sufficient number of reported cases upon which we can base an opinion.

For the purpose for which I present this paper the subject can be best considered under the following propositions:

First—What are the conditions that justify the removal of the ovaries, other than the existence of an ovarian tumor?

Second—How great is the danger to life from the operation?

Third—What has been the curative result in the recorded cases where the patient has survived the operation?

In considering the first proposition, the class of cases that have attracted the most attention during the past year in this connection, have been those where there has been uncontrollable uterine hemorrhage, due to the existence of uterine fibroids. As is well known by those who have had to deal with fibroid tumors situated in the wall of the uterus, or involving the whole organ, and where they are not amenable to surgical treatment except the whole organ above the cervix be removed, hemorrhage is often present to a frightful degree

in many cases, is unmanageable either by internal remedies or by local applications.

In these cases, when the usual remedies have failed to give relief, and the patient's life is in danger, the removal of the ovaries gives better results than any method which has yet been adopted.

The object of the removal of the ovaries in these cases is to bring about, in an artificial way, the change of life; to cause a cessation of the monthly congestion of the parts, and to effect thereby an atrophy of the uterus and the morbid growth, or at least an arrest of development.

It is now generally conceded that the nutrition and functions of the uterus are dependent wholly upon the ovaries; that upon the existence of these last named organs depends the monthly congestion and the monthly hemorrhage; and although it is not invariably the case, it is the rule for uterine fibroids to cease growing, to become atrophied, or to cause no trouble thereafter, except on account of their size, after the change of life occurs.

It would seem as though this fact would long ago have led surgeons to undertake the removal of the ovaries in order to precipitate the menopause in cases that were otherwise unmanageable; but it should not be forgotten that it is only since the remarkable discoveries of Lister that we have been enabled to open the abdominal cavity with an impunity that was not dreamed of only ten years since.

I have collected statistics of forty-nine cases where the ovaries have been removed for uterine hemorrhage due to fibroid tumors of the uterus. Of these, eleven died; one, however, from malignant disease, which would leave the correct death-rate at ten out of forty-eight operations.

The five cases collected by Dr. Emmet all recovered, with entire cessation of the hemorrhage.

Dr. Lawson Tait, of Birmingham, England, has recently reported a series of twenty-four cases (excluding one case of cancerous disease), operated on since August 8th, 1879. These cases were operated on for uterine hemorrhage, due

either to uterine fibroids or to some morbid condition of the ovaries that could not be otherwise relieved. Out of the twenty-four cases there were two deaths, nineteen complete cures, and three cases greatly improved.

Mr. Tait's experience with five cases that he operated on in 1873–4, for similar affections, led him to the conclusion that, in order to fully effect a change of life by the operation, the fallopian tubes should also be removed. Further observation will be needed to settle this point; but Mr. Tait's remarkable success will probably encourage other operators to undertake this procedure in cases where other means have failed to give relief.

In prolapse of the ovary into Douglas' pouch, where the organ is enlarged and tender, and where it cannot be retained in its normal position by treatment or by artificial support, if the health of the patient is seriously impaired and her life is rendered a burden by the severe and continuous pain, the removal of the diseased organ is not only justifiable, but is demanded on good surgical principles.

In chronic ovaritis, also, where as a consequence of repeated attacks of pelvic inflammation the ovaries have become enlarged and painful, where the menopause is still far distant, and the patient has become a chronic invalid, with constantly recurring attacks of ovaritis, the question of the removal of the diseased organs is a legitimate one for consideration, unless relief is rendered by a less dangerous plan: and I am quite sure that the majority of women who have suffered long in the manner I have described, would willingly submit to an operation involving the most serious risks, if a reasonable prospect of recovery could be held out.

When there is abscess of vagina and uterus and where the ovaries exist, and ovulation is attended with serious symptoms, such as intra-peritoneal hemorrhage or excessive pain; or where the canal of the uterus and vagina have become obliterated as a consequence of sloughing and cicatricial contraction to such a degree as to frustrate our efforts to keep the canal patent; if ovulation is attended with serious symptoms then

the removal of the ovaries is our only resource, and is an entirely justifiable operation.

After removal of the ovaries, in the cases last described, the mortality, among the earlier operators, was as high as twenty per cent, but among recent reports, notably one by Dr. Savage, of Birmingham, England, who reports thirty successful operations within the past two years, and Lawson Tait, also of Birmingham, reports seventy cases operated on since May, 1879, of which number only six died.

Of these seventy cases, thirty-two were operated on for the diseases last mentioned, such as chronic ovaritis, abscess of ovaries, recurrent hematocele, etc., with only one death. Truly a most remarkable showing, when compared with the experience of others, and when the gravity of the operation is considered.

Dr. Bailey gave the mortality in all the cases he was able to find recorded, at twenty-two per cent for all completed operations, and nine and a half per cent for the incomplete operations.

Of those who recovered from the complete operations, seventy-five per cent were cured of the diseases for which the operation was undertaken; seventeen per cent were greatly benefited, and eight per cent were not benefited.

When the operation was only partially completed—that is, only a partial removal of the ovaries—as would naturally be expected, the proportion of cures is much less.

The ovaries have been removed, also, in cases where the recurrence of the menstrual period is attended with epileptic attacks, and in cases of insanity where the mental disease seemed due to causes connected with the monthly congestion of the pelvic organs, and in some instances the results have been satisfactory; but as yet the number has been too limited upon which to base an opinion, or to lay down rules.

Two methods of procedure are open to us in removal of the ovaries: First, by cutting through the roof of the vagina into the Douglas pouch, introducing the finger into the peri-

toneal cavity, and drawing down the ovary, ligating the tissues above it, removing the organ, and returning the ligated part into the abdomen and closing the vaginal opening. Second, to open the abdomen in the linea alba, as in ovariotomy, draw the ovaries toward the opening, ligate beneath them, and after their removal, cut the ligatures short and close the abdomen in the usual way.

Those who have had the greatest experience, prefer the abdominal method, for the reason that, although confessedly more dangerous to life, it enables the operator to complete the operation with more certainty, and in some cases the ovaries are so bound down by adhesions, that they cannot be removed by the vagina.

The operation is frequently more difficult than that for the removal of ovarian tumors, owing to the rigidity of the abdominal walls and the small size and adhesions of the ovaries to the adjacent structures.

Objections have been raised to the removal of the ovaries, on moral grounds, it being feared that the operation was one likely to be abused, if it came into general use; but this objection has but little force, for it is of so grave a nature, that it is not likely to be undertaken by any but those whose skill and experience would be a guarantee for the necessity of the procedure.

I am not aware that the operation has been performed but twice on this coast, both these operations having been performed within the past year.

One was for chronic ovaritis, of over twenty years standing, and resulted in the recovery of the patient and relief of the symptoms for which the operation was performed; the other was undertaken for the relief of a serious affection of the nervous system that seemed much aggravated at the menstrual period, and the patient died at the end of the fifth day.

An interesting question in connection with this operation is, its effect on the subsequent general condition of the patient: Does she retain the characteristics of her sex? This is answered

positively in the affirmative. And it is claimed that the patient from whom the ovaries have been removed, retains all the grace and attributes of womanhood, except that she cannot conceive.

Before concluding what I have to say on this subject, I wish to call attention to the fact, that the mortality in these operations must ever remain much greater while undertaken by the general profession, than in the hands of men whose opportunities give them the advantage of seeing a large number of cases, and thereby acquiring a skill that can come only from experience.

The removal of the entire uterus, for cancer of that organ, has been advocated, and the operation has been performed a considerable number of times, both in this country and in Europe—Germany taking the lead, both as to the number of operations and of successes.

The operation is not a new one, for over sixty years ago it was performed repeatedly, but the mortality was so great that the removal of the entire uterus for any cause was generally abandoned, and it is only since the introduction of antiseptics into surgery, and the brilliant results following their use in ovariotomy, that hysterotomy has been revived for the relief of malignant diseases of the uterus.

The indications for this—one of the greatest operations in surgery—are, first, that the question of malignancy be definitely settled, by a microscopical examination of a portion of the diseased tissue, if necessary; secondly, that the disease be confined to the uterus itself, that the organ be freely movable, and that there be no perceptible infiltration of the surrounding tissues.

I am satisfied that if this second indication had been strictly observed by the various operators who have reported their cases in detail, the statistics of the operations would have presented a more creditable showing.

I think it but just to the patient and operator, that the full explanation of the dangers of this formidable operation be

made to the patient and her friends, presenting on the other hand the alternative of a painful illness and a lingering death.

It is still too soon to give reliable statistics of the large number of cases that have been operated on during the past three years, for there has not yet sufficient time elapsed to determine the proportion of cases that have recovered from the immediate effects of the operation, and still remain free from a return of the disease.

Nearly seventy per cent of the recorded cases have recovered from the operation, but of this number there have been several relapses reported and probably more will occur.

There are two methods of removing the uterus—the abdominal and the vaginal.

In the abdominal method, after the abdomen has been opened through the linea alba, the broad ligaments are ligated close to the uterus on either side, the upper and lower half being inclosed in separate ligatures, the bladder is dissected from the uterus, the utero-sacral ligaments are divided, together with Douglas' cul-de-sac, and the uterus is then easily removed after the broad ligaments are divided close to the uterus, inside the ligatures which control the spermatic and uterine arteries.

In the vaginal method, the patient is placed on the left side, a Sims' speculum is introduced, the uterus is drawn down a little with a vulsellum, a strong, slightly curved needle is introduced as high as possible through the tissues on either side of the cervix, keeping close to the uterus, and the ligature left in the track of the needle is intended to control the uterine artery and avoid the ureter, which lies very near the artery at this point. When the ligatures are tightened, the bladder is dissected off the anterior surface of the uterus with a pair of long handled blunt scissors. Douglas' pouch is cut open in the same manner, and the uterus retroverted through the opening. The upper part of the broad ligament, together with the spermatic arteries, are now ligated and the uterus allowed to return to its position; then, by dividing the broad ligaments inside the ligatures, the uterus is removed. The ligatures are

all left long and depending from the vagina, the opening made by removal of the uterus is left open without sutures, in order that free drainage is insured; a self retaining catheter is left in the bladder, that the woman may be disturbed as little as possible, and opium and quinine given as required to control pain or fever; vaginal injections being used of warm carbolized water, only when the character of the discharge would indicate them.

Within the past fourteen months, I have operated once by the abdomen and once by the vaginal method. The case operated on by the abdominal method died from shock within twelve hours from the conclusion of the operation.

The case operated on by the vaginal method recovered perfectly without a bad symptom, and is now in a fair state of health and able to attend to her household duties. It is now nearly eight months since the operation, and there is no return of the disease, although two months ago I feared a return, from the fact that there was an increased vaginal discharge, and slight ulceration of the cicatrix at the point of union in the roof of the vagina, but the irritation disappeared under the application of iodoform.

From my observation in my own cases, and from those reported by others, I think it is evident that the danger to life from the operation is much greater by the abdominal than by the vaginal method; and I think the latter will doubtless be the one adopted by the profession as a legitimate one. It is claimed by Schroder, of Berlin, that in the cases where there was a return of the disease at the site of the operation, that there was a marked absence of pain, as compared with the cases where the uterus had not been removed, and that hemorrhage was not present. The vaginal discharge was also much less, and for these reasons life was more bearable.

It is found in practice that there are a certain number of cases of pelvic abscess that do not tend to point in the vagina, but on the other hand are situated high up in the pelvic cavity, and may be extra or intra-peritoneal, and cannot be reached with certainty or accuracy from the vagina. In these cases,

where we can find, upon palpitation of the abdomen, a well defined tumor, and if accompanying it we have the constitutional symptoms indicative of an accumulation of pus in the body, such as hectic fever, chill, profuse perspiration, and emaciation, it often comes to be an important question to decide as to the proper course to pursue.

If there is a spot on the surface where there is a disposition for the matter to point, as evidenced by tenderness, redness, and fluctuation, the course of the surgeon is plain; if the danger to life is imminent, evacuate the abscess at once, or, if there be no urgent symptoms, allow nature to complete the work.

This is not the class of cases, however, that I wish to call attention to, but to those cases where there is apparently no point where the pus is likely to escape, and where it is evident that unless assistance is rendered, the patient must succumb to the disease; in short, to those cases where nature seems unequal to the emergency.

The plan to be pursued in these cases seems to me to be very clear and plain. Open the abdomen directly over the most prominent portion of the sac; if the opposing surfaces of the abdominal wall and the abscess are agglutinated, so much the better; if not, draw the sac up to the abdominal wall and stitch the two together, and afterwards make a free incision; wash out the sac with carbolized water, and leave in a drainage tube until the sac closes, in the meantime keeping the cavity clean by daily injections, if required. If the cavity does not close in a reasonable time under the influence of tonics, good food, and fresh air, a sound, passed into the sac and made to impinge upon the roof of the vagina, can then be cut down upon, and thus a drainage tube can be introduced through the sac into the vagina, and afterwards kept in situ, insuring free drainage from above.

In connection with the operations I have mentioned, the question would naturally arise: Shall we carry out the antiseptic plan recommended by Lister, including the spray?

Without wishing in the least degree to detract from the value of the discoveries of Lister, I would say that I do not think the spray is required, and further, that perfect cleanliness is but another name for Listerism.

If the hands of the operator and his assistants are washed clean with soap and hot water, and the hands, sponges, and instruments are dipped into alcohol just before the operation, and during the operation the sponges used are washed out in hot carbolized water, we will have accomplished all that can be done in the way of antiseptics.

Probably all present, who have resided in California for any length of time, are aware of the peculiar—I might say almost poisonous—effect of the Simoon of the Pacific Coast, called the north wind.

The nervous system becomes irritable, and this effect is very noticeable in animals as well as men; the skin becomes parched, and there is a feeling of lassitude and malaise; and I have noticed that in acute disease little improvement took place during the time that the north wind prevailed.

I would advise that important operations be not undertaken during the existence of this wind, if they can with safety be postponed.

Another element that I think worthy of notice, especially applicable to the region bordering on the ocean, or around the Bay of San Francisco, where we have so large a percentage of moisture in the atmosphere during the entire year, is that of sunlight.

If it is possible, avoid having your patient in a room on the north side of the house, for, if the sun's rays do not enter the room, for at least a portion of the day, the air of the room will be damp, and the presence of a fire, although it may make it warmer, will not dry the air as does the sun.

These details, although they may not be considered of prime importance, should never be lost sight of, for I doubt not they sometimes turn the scale between a fatal and a successful termination of a case.

REPORT OF COMMITTEE ON DISEASES OF WOMEN AND CHILDREN.

BY KATE N. POST, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: In glancing at the results of the various methods of treatment applied to diseases of women, during the past year, we were impressed that the one result most worthy of your consideration was that obtained from the therapeutic action of *rest.*

Mrs. C., æt. twenty-seven, was brought to the Hospital for Women and Children in September of last year. She appeared in good health, but complained of headache, backache, lassitude, sleeplessness, anorexia and constipation.

She had had three children, the youngest sixteen months previous, since which time she had had constant medical care, but not having improved, her mind was in a pitifully hopeless condition as to the possibility of her restoration to health.

A thorough examination of the uterus digitally, and with the speculum, produced no pain, and revealed only a slight laceration of the cervix to the left side, with some hyperemia. Pressure in the ovarian regions produced no pain.

Her friends stated that she had always been "nervous," disinclined to exertion, and insatiable in her desire for sympathy.

She seemed one of those invalids to whom Dr. Emmet's method of treatment by compelled exertion would apply. She was therefore advised to lay aside her becoming lounging wrapper and cap, and encouraged, nay, *exhorted*, to take out-of-door exercise, and to go down stairs to her meals.

Tonics were given to increase her appetite and to regulate her bowels, and hot vaginal injections night and morning to relieve the hyperemia.

At the end of six weeks the uterine hyperemia had disappeared, but she recounted every one of her symptoms as faithfully as on the day she entered, and would admit no improvement whatever in her condition.

She was then informed that since she had not sufficient will power to effect a cure, her only hope of relief from permanent invalidism was to submit herself, for not less than two months, to what is known as Dr. Weir Mitchell's rest cure. The nature and requirements of this treatment were fully explained to her friends, and their consent obtained to do all in their power to insure its success, viz: to absent themselves from her entirely. After some deliberation she also consented, and was put in bed in a sunny room, in charge of an excellent nurse, who devoted herself to the patient, and was, excepting the physicians, the only person admitted to the room.

Reading, writing and fancy work were prohibited. She was not allowed to bathe herself, comb her hair, or feed herself, nor to do anything, indeed, which would require the least exertion on her part, except to roll from one side of her bed to the other while it was being made. Her letters all came through her physicians, and those (and those only), which could not possibly disturb her equanimity, were read to her. Her nurse, also, in accordance with Dr. Mitchell's advice, read items of placid interest from the newspapers, or selections from some mild novel, aloud to her, at intervals during the day, to relieve the otherwise unbroken monotony.

Her diet was restricted to milk in some form, hot or cold, as she preferred, and was given to her every two hours, for the first two weeks, and then varied by the addition of some easily digested fruit in the morning, and oatmeal or graham crackers, during the day. The nurse was thoroughly instructed in massage, which she administered for a half hour night and morning, giving a special kneading to the region of the liver,

in order to prevent (the probable) congestion from full feeding and inactivity.

She was also instructed in the daily application of the faradic current to all the muscles of the body, and of the constant current to the ovaries.

At the end of another six weeks Mrs. C. was sleeping well, the bowels moved naturally every day, her loathing for food was replaced by an impatient desire for full diet, and her headache was not constant. One thing, however, threatened to modify the success of our treatment. She was hourly conscious of her uterus and was sure that something must be done for it.

She was consequently etherized, and the slight laceration noted in the first examination repaired. A week later she was given full diet, and being now relieved of all apprehension, she soon was in such condition that she was allowed to sit up for a time every day; then, though feeling weak, she was encouraged by degrees to ride out and walk out, and to assume the care of her youngest child. When this was accomplished, her husband was permitted to see her, and in a few days took her home, it being then ten weeks from the time of commencing the rest cure. She gradually assumed her household cares, which she had relinquished for two years, and at last accounts was feeling well, strong, and *grateful*.

Apropos of rest, we were treating a patient for metritis whose recovery was much retarded by an incessant indistinct pain in the ball of the foot. As we could attribute the metritis to gonorrhœal infection, we also attributed the pain to gonorrhœal gout; applied extension to the great toe, by means of plaster and a piece of cigar box, and cured the pain in two days by rest to the joint.

In *Diseases of Children* we have obtained the best results from this agent in its time honored application to hip-joint disease. During the year four children, between the ages of two and four years, have been so successfully treated with good feeding, cod liver oil, and constant extension rest to hip joints, that they are now able, by wearing a thick-soled shoe

on the lame foot, to walk comfortably, and without rekindling inflammation in the joint.

Katie G., eleven years of age, was sent to us last summer, by a physician, to be treated for Pott's disease of the spine, and possibly hip-joint disease. The trouble had been coming on for over a year. The child was extremely emaciated, bent over to the left side, and the left thigh flexed on the abdomen. Upon examining the spine, however, no projecting or painful spinous process was discovered, but there was great tenderness of the left transverse process of the first lumbar vertebra, which extended over one third the distance to the crest of the left ilium. The diagnosis made was an abscess lying just inside of the venter of the ilium; and an incision being made parallel with and just internal to the iliac crest, the diagnosis was confirmed by a copious discharge of pus. The thigh was immediately relaxed and extended voluntarily. The child recovered rapidly, gained in flesh, and in two months was sent home, walking upright and perfectly well, hardly a scar remaining of the wound.

The recent epidemic of measles left in its wake a large number of sufferers from the various sequelæ, due in the majority of cases to want of care. Of these the greater number that have come under our care have been those suffering from ophthalmia and otorrhœa, with eczema of the nostrils, and in and around the ear.

The otorrhœa has been successfully treated by the injection of a two and one half per cent solution of carbolic acid into the ear, repeated every two hours during the day; and the ophthalmia and eczema by the application to the lids and to the eczematous patches, of an ointment akin to the *unguentum cerussæ* of Hippocrates, containing lead, camphor, red precipitate and vaseline.

Last year we reported to you two cases of that form of bone syphilis in children known as *dactylitis syphilitica*. We have this year to report to you two cases of syphilitic necrosis of the femur, in one case affecting apparently the entire shaft, but limited in the other to the condyles and popliteal space.

The first one, Dora H., came to us in August of last year, to be treated for a swelling of the right thigh, which presented two small openings, one on its internal and one on its external surface.

The parents were carefully questioned, but would admit no specific taint, and the diagnosis made by the physician sending her in was scrofula.

The child after having been invigorated by generous diet and supporting medicines for a month, was etherized and a sequestrum three inches in length removed from the femur. She recovered well from the operation, but required several months of good feeding and nursing before the discharge of watery pus from the wound ceased.

She was dismissed in December last, in apparent good health and with the openings in the thigh all healed, but returned in February with renewed hardness and swelling of the thigh, and renewed ulcerations through which small pieces of bone were being thrown off.

The mother accompanied her on her return and confessed, in great trouble, that the father of the child had the "venereal" when they were married, and had contracted it afresh several times since, but that none of their other children, of whom our little patient is the seventh, showed any signs of being affected by it. She also stated that this child, when two weeks old, was covered with "water blisters," and that she had an eruption of sores at various times up to her seventh year, when her shoulder became very much swollen and gave her excruciating pain at night; after several months, it was laid open and several pieces of bone removed from the tuberosities of the humerus. After this had all healed the thigh had commenced to swell and continued so for eighteen months previous to her first admission.

Upon her readmission to the Hospital, the child was put in bed, a rubber bandage applied to the leg and thigh, and a mixture containing four grains (increased gradually to ten) of iodide of potash and 1-48 of a grain of the bichloride of mercury to the dose, given her three times a day. The hardness

is now disappearing from the thigh, and the child's waxy appearance is giving place to a healthful, rosy color.

The second case, Flora S., was brought to us last February with immense swelling just above, but not involving, the right knee joint.

The swelling had commenced two years previous, and the mother was convinced that the child's condition was due to syphilis in the father.

There was fluctuation in the external surface of the swelling, and a spot as large as a half dollar on the internal surface where the tissues had begun to slough away. She was etherized, the external surface freely incised, the internal surface cleansed of a degenerating mass of adipose tissue, and a canal found connecting the two openings.

Through this canal a drainage tube was passed and the cavity syringed out with a two and one-half per cent solution of carbolic acid every morning.

In a week the part was again examined under ether, and the condyles and popliteal space found roughened. The bone was therefore scraped, bringing away small pieces, until perfectly smooth.

Immediately upon her entrance, the child had been put upon cod liver oil and whisky, and a tonic mixture containing tincture of iron and tincture of cinchona, and the pain in the knee was so intense, that not only chloral but morphine also, were required to procure ease and sleep at night.

But after the second etherization, two weeks from the time of her entrance, she was given a mixture containing the iodide of potash and bichloride of mercury, and the cavity stuffed daily with iodoform, which was also sprinkled over the surfaces of the wounds, and in two days the child was free from pain.

This treatment has been continued now for four weeks and the canal is closing from within outwards; the bone remains smooth. The surfaces of the wounds have changed from a purplish hue to bright red granulations, and in place of a pallid, moaning invalid, we have a bright, cheerful, comfort-

able convalescent, able to bear the amount of extension necessary to counteract the tendency to flexion of the leg upon the thigh; sleeping the whole night without pain; eating well, and regaining that healthful color which belongs to children.

In thus adding our grateful testimony to the advantages of *iodoform*, we must also present the other side of the picture, by stating that we have used it for two weeks by insufflation into both ears, for chronic catarrh of the middle ear, with the effect of completely checking the discharge, but we were called yesterday to the child to observe the following: His face was one erythematous blush, with white patches, as though frozen, upon the cheeks and nose and around the mouth; no evidence of the eruption upon the body. The pulse was 150, and the temperature 104 3-5°. There being no other cause for the eruption, and the case bearing a strong likeness to those reported in the last number of the *American Journal of the Medical Sciences*, we attributed it to the use of iodoform; ordered the ears cleansed of it, and in three hours the eruption vanished.

Willie MacN., aged eleven years, was brought to us last October, to be treated for nocturnal incontinence of urine, which had commenced seven years previous. The lad was pale and emaciated, and from his constant handling of the penis, we were led to suspect that his trouble was due to masturbation. This suspicion, however, proved to be an unjust one, for it was found that the circumstance leading to it was owing to a severe pain at the base of the bladder, of which he complained so bitterly that the bladder was sounded, and the presence of a calculus discovered. We then learned that he frequently passed fragments of white concrete matter with his urine.

The child was now etherized, and one hour and a half consumed in the removal, by peritoneal lithotomy, of a stone weighing three hundred and eighty grains. No stitches were taken in the wound, nor was the lad catheterized after the operation, but the wound was frequently washed with a solution containing boracic acid, and poultices containing boracic acid applied to it every two hours, day and night, for ten days.

He recovered without an untoward symptom, the wound closed by granulations, and the lad regained the power of retaining or voiding his urine at will, both night and day.

I mention this case because of the comparative infrequency of the disease on this coast, the large size of the stone, the happy restoration of the boy to perfect health, and also because, after trying every forcep made for the purpose of removing a stone, the *bullet* forceps were alone successful in grasping and removing this one.

I have, in closing, to present to you a case of congenital malformation of the heart, of rare interest, for although the abnormalities present quite often occur singly, they are so seldom found in the same heart that Ziemssen, in his exhaustive Cyclopedia, records but eight cases, all of them similar to this one in everything but the peculiar arrangement of the pulmonary vein which we find here.

Little Rickie came under our care two years ago, when she was just closing her first year. She had bad "spells" of some kind, so her mother stated, since she was five weeks old, and was supposed to be suffering from epilepsy when she was brought to us.

As soon, however, as we saw her in one of her convulsions, the heart was suspected as the cause. They came on after eating, and after violent crying or coughing, when the fingers commenced to grow blue, then the face to turn the same color, and in a few moments she would be gasping for breath, lashing the air with her arms and legs in the frantic effort to breathe, and gradually lose consciousness, becoming almost comatose. These attacks sometimes lasted for hours, and each one grew worse than its immediate predecessor. She did not remain long with us, but was returned to her mother, with the assurance that nothing could be done to save her life, but that it might be prolonged by great care as to food, and by not allowing her to exercise. These instructions were most faithfully followed, and the child thrived and grew strong, in spite of the ever and frequently recurring attacks of cyanosis and dyspnœa. Her heart was most carefully examined in July

last, and the following results noted: Clear tones at the apex, a systolic and diastolic murmur at the tricuspid region, loudest at the left third intercostal space, and at the aorta, beside the clear tones, the conducted murmurs were heard.

In December last she had her last violent convulsion, and she commenced to grow weaker and weaker, her limbs bloated, and the attacks of dyspnœa were replaced by slight fainting spells after eating. This condition continued up to the fourteenth of this month, when, though she was constantly failing, she did not seem very much worse, but upon attempting to cough, she suddenly cried out in pain, drew a few difficult breaths and died, being then three years of age.

The post-mortem examination was made eighteen hours after death, by Dr. Brown, assisted by Dr. Hirschfelder, to whose kindness we are indebted for assistance in the explanation of the symptoms found during life, by the evidence brought to light at the post-mortem.

The thorax being opened, the heart, enveloped in the pericardium, was found to occupy fully one third of the thoracic cavity, resting upon the spinal column. Taken as a whole, it was enlarged by hypertrophy and dilatation. Upon opening it, the foramen ovale was seen to be entirely inclosed, its valvular fold almost wanting, and the remaining portions of the interauricular septum were extremely attenuated. The second malformation noted was the entire absence of communication between the right auricle and ventricle. The third malformation consists in the lack of development of the interventricular septum at its upper fourth, forming an oval opening between the ventricles. This being the "undefended space," is the most frequent site of defects in the interventricular septum.

The left ventricle is about five times as large as the right, which is probably undeveloped from disuse; the opening of the pulmonary artery being only large enough to admit an ordinary silver probe. The pulmonary valves are intact, but are situated about an inch from the point of exit of the artery from the ventricle, while in the ordinary situation of the valves, only a narrow opening with very rough edges exists.

The aorta with its semilunar valves is intact, as is the neutral valve.

The vessels were cut too short in removing the heart for us to find the communication of the ductus arteriosus with the aorta, but it is given off from the pulmonary artery about an inch above its semilunar valves, and is about one third its size. The pulmonary artery is also dilated just below the point of giving off the ductus arteriosus, as though by the force of a *descending* stream.

We may therefore assume, that the collateral circulation through the bronchial, œsophageal and cardiac arteries, not being sufficient to support life, compensation was made by the blood flowing from the aorta, *through* the *pervious ductus arteriosus*, *into* the pulmonary artery (causing its dilatation at this point), and thence through its branches to the lungs. The pulmonary vein passes around the wall of the left auricle and empties into the right auricle just behind the interauricular septum.

The superior and inferior venae cavae also empty into the right auricle as they should do. Upon examining the lungs, two recent hemorrhagic infarctions and one old one, were found.

The liver was enlarged and indurated, and was undergoing amyloid degeneration.

The spleen and kidneys were also amyloid and the former presents a beautiful instance of the *sago grains*.

We heard a clear systolic tone at the apex, because the mitral valve is intact, and a clear diastolic tone at the apex, because there is no stenosis of the *mitral ostium*.

The systolic murmur heard at the lower end of the sternum, was caused by the mingling of the stream of blood from the left ventricle into the aorta, with the stream from the right ventricle, which, owing to the minuteness of the pulmonary orifice, was also forced into the aorta, causing eddies in the current and a murmur.

The diastolic murmur heard in the same situation, was caused by the passage of blood, in diastole, from the left ventricle (which is filling from the auricles), into the right ventricle through the interventricular opening.

At the aorta, we heard clear tones, because the aortic semilunar valves are intact; and we heard the murmers loudest in the left third intercostal space, because that is immediately over the orifice between the two ventricles.

In the extremely contracted opening of the pulmonary artery, we have the explanation, according to Ziemssen, of the interventricular opening, because, "the current of blood of which little or none can escape by the pulmonary artery, necessarily presses through the open septum, making its closure impossible and giving the opening the appearance of a rounded hole with smooth edges."

The hemorrhagic infarctions found in the lungs may be explained by a clot or embolus having formed on the roughened edges of the pulmonary orifice, which was carried along by the pulmonary arterial current and lodged in the capillaries. Their supply of arterial blood being thus shut off, the walls quickly degenerated, and there being no *vis a tergo* to resist the blood in the nervous capillaries, it, by *vis a fronte*, broke down the weakened walls and exuded into the tissues, causing hemorrhagic infarctions.

The hypertrophy of the liver was due to amyloid degeneration, and to its constant engorgement, because the heart, having but one channel through which to empty itself, was kept so constantly full that the inferior vena cava could never completely fulfill its function of emptying its blood into the right auricle. The amyloid degeneration of the liver, spleen, and kidneys, may have been due to imperfect nutrition by the badly aerated blood, just as we find amyloid degeneration in phthisis.

The uterus was very imperfectly developed, and the metacarpal bone of the right thumb was wanting; both these

defects admitting of the preceding explanation—lack of nutrition.

The attacks of cyanosis and dyspnœa, during digestion, may have been due both to the pressure of the distended stomach upon the heart and its vessels, and to the increased activity of the liver at that time, causing a larger stream to be forced from the inferior cava into the heart, and the venous blood which always mingled with the arterial in the right auricle, owing to the peculiarity of the pulmonary vein, was thus sent in greater proportion both into the systemic and pulmonic circulations, and possibly poisoned the nerve centers, so causing the unconsciousness.

The dyspnœa, after crying and coughing, is possibly and simply explained by obstruction to the venous circulation, and that after exercise, by increased demand for activity of the heart.

We have seen that the child grew gradually weaker for several months before death, and we may give as the cause, the gradually decreasing power of compensation to supply the increasing needs of the developing body, and at last, a sudden strain being made upon it, it failed utterly, and death ensued.

REPORT ON OPHTHALMOLOGY.

By WM. ELLERY BRIGGS, M. D., CHAIRMAN.

CATARACT OPERATION.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: The removal of opaque crystalline lenses has been practiced from almost the earliest times in medical history, but, until von Graefe's time, with indifferent success. Although so long established, the operation almost yearly undergoes improvements, or at least changes, which, by their introducers, are claimed to be improvements, upon older methods of operating.

The method most extensively employed of late years is v. Graefe's linear extraction, or some of its modifications.

Many of the new methods are successful only in the hands of their originators; but two methods which have recently been brought forward by two very distinguished operators, Dr. H. Knapp, of New York, and Dr. Hermann Pagenstecher, of Wiesbaden, require consideration as being, both in results as presented by the statistics of these gentlemen and in the rationale of their methods, worthy of more extensive trial.

Although Dr. Knapp's method of peripheric capsulotomy is not entirely new (it having been performed quite extensively by Dr. Jules Quioc, of Paris, in 1873 and 1874, but not often resorted to since that time), it is to Dr. Knapp that we owe its extensive discussion and the thorough testing of its advantages.

Dr. K's operation consists in the different steps, as follows: The corneal section, which is generally linear; iridectomy;

opening of the lens capsule by the peripheric incision with a delicate, sharp needle cystotome; and expulsion of the lens. The ends of the corneal incision are situated from one to two millimeters in the limbus of the conjunctiva, its apex in, or frequently one or two millimeters below, the upper edge of the cornea. The puncture and counterpuncture are two millimeters above the horizontal meridian, giving the length of the section, as a rule, its maximum extent. From his experience, he does not consider the flap section as favorable, from the tendency of the wound to gape, or the flap to tilt, and the greater caution required in the subsequent steps. The only objection to the linear section is the too close encroachment of the ends of the incision upon the insertion of the iris and ciliary body, and the bad effect of the subsequent reaction. The iridectomy is made large, usually with three strokes of a curved scissors. The edges of the wound are cleared of any portion of iris remaining, as after any other operation.

"The capsule is opened by a peripheric incision with a delicate, sharp needle cystotome, the cutting edge of which forms with the stem an angle of 145°. This instrument is passed along the upper periphery, a little in front of the equator of the lens, to avoid opening the vitreous chamber. To promote subsequent union it is essential that the lens incision be made by a sharp instrument, and not torn, as in ordinary cataract operations, and also that the section be made large enough to admit of free exit of the lens without laceration of the capsule."

The lens is expelled by pressure on the lower edge of the cornea with a hard-rubber spoon, directed towards the center of the globe. The subsequent dressings are the same as in other methods. The doctor does not adopt the antiseptic treatment, but scrupulous cleanliness of instruments and hands is observed.

The visual results, in a series of an hundred cases operated on by Dr. Knapp, are as follows: S.=$\frac{20}{20}$ in eight cases; S. between $\frac{20}{20}$ and $\frac{20}{40}$ in thirty cases; S. between $\frac{20}{40}$ and $\frac{20}{70}$ in

thirty-three cases; S. between $\frac{20}{70}$ and $\frac{20}{200}$ in seventeen cases; S. between $\frac{20}{200}$ and $\frac{3}{200}$ in seven cases; S. 0 or $\frac{1}{\infty}$ in five cases.

The advantage claimed for this operation, is the freedom of the eye from irritating cortical substance which so often compromises the result in the ordinary methods of operating. Those who have had experience with hypermature, or Morgagnian cataracts, can thoroughly appreciate this desirable result.

The percentage of cases requiring a second operation, is very large in the doctor's list. Among the hundred cases reported, discission was performed in thirty-eight, in from fourteen days to one year after the first operation.

The needle operation produced very great improvement in nearly all cases, bringing the vision in many cases quite up to normal. Notwithstanding its simplicity, the frequent necessity of discission is certainly an objection to this operation, as patients look with great dread upon any operation upon the eye some refuse to submit to a second interference. I hope to hear of more extensive application of this method, as the danger of destructive inflammation is certainly less than from the ordinary manner of operating upon the lens.

But the operation which, in my judgment, excels, and will undoubtedly supersede all others in a large number of cataracts in the future, is that first employed by the late brother of Dr. Hermann Pagenstecher, of Wiesbaden, in 1873, and described by that gentleman in Vol. X, No. 2, of the *Archives of Ophthalmology*, and also in a pamphlet published by him in 1877. Dr. P. says: "These three points precise indications for the operation, skill from repeated practice, and the use of antiseptics, have greatly contributed to elevate our method to a height, at which, without exaggeration, it surpasses all others." Dr. Pagenstecher [illegible] will supersede all others in certain forms of cataracts, such as Morgagnian hypermature or cataracts [illegible]. His method consists in removing the [illegible] with a scoop.

Dr. P. accounts for the slowness with which this method has been adopted, to the fear in which loss of vitreous and introduction of the spoon are held by most operators. But he assures us that, under antiseptic treatment, we need have no fear of the escape of a small quantity of vitreous, and the scoop is introduced so as not to injure any parts of the eye. The doctor thinks that its success gives the key to the greater or less hazard of the operation and refers us to his statistics.

The success of this operation depends more or less upon the proper selection of the cases, and the doctor lays down the general rule that, "Cataracts which have matured rapidly, say in a few months, should never be removed in the capsule, but always by opening the capsule. In such cases the capsule does not acquire sufficient strength in comparison with that of the zonula."

He suggests that each operator begin by using this method only in those cases in which it is undoubtedly best—such as cataracts after irido-choroiditis, pronounced hypermature and Morgagnian cataracts—he will soon learn for himself in what further series of cases it is indicated.

The spoon is introduced by sliding it carefully between the lens and anterior surface of the vitreous, usually without breaking its anterior limiting surface. The doctor always uses antiseptic precautions, which he considers very essential to a favorable termination.

In briefly summing up its advantages the doctor says:

"1. We gain a perfectly clear pupil.

"2. Iritis, especially plastic as well as recurrent, with all its consequences, is never observed.

"3. There is no danger that vision once regained will again decrease from secondary opacity of the capsule, as happens so frequently after the usual methods; nor is there any need of the secondary operations, which are so disagreeable to the patient as well as operator.

"4. We gain the greatest amount of vision; perfect, and even more than perfect vision in twenty-four per cent of the cases can hardly be noted after any other method. The partial successes are reduced to a minimum.

"5. Hemorrhage, especially recurrent hemorrhages, are much less frequently observed.

"6. Symptoms of dazzling (so often observed after other methods), which are due partly to slight irritation of the iris, and partly to diffusion of light through the remaining capsule, are less frequent during recovery, and at later stages are never observed.

"7. The capsule cannot, of course, become incarcerated in the cicatrix.

"8. Even in eyes with severe complications we gain relatively the best vision."

The disadvantages can be reduced to the following:

"1. In some cases it takes slightly longer for the incision to heal.

"2. Opacities of the vitreous are more frequent, but our statistics will give the best proof of their relation to the vision regained.

"3. Astigmatism is, on the average, somewhat higher than in extractions without the capsule."

In one hundred and seventeen operations performed by Dr. Hermann Pagenstecher and his brother, by this method, the results were as follows: S. $\frac{5}{5}$ or better in twenty-eight cases; between $\frac{5}{5}$ and $\frac{5}{8}$ in thirty-seven cases; between $\frac{20}{40}$ and $\frac{5}{8}$ in twenty cases; $\frac{5}{10}$ in two cases; and fingers at 4 in one case. In three cases S. 0 quantitive perception of light and amaurosis, one of these being total loss of the eye by panophthalmitis.

I operated on a [illegible] case of traumatic cataract that had been produced six years previously by the blow

of a whip. The lens was displaced backward and downward. I was certain that if removal of the displaced lens was attempted by pressure on the lower border of the cornea, it would only push it further into the vitreous chamber. I therefore used the spoon, and extracted it in the capsule, with good success, considering that there were slight opacities of the vitreous previous to the operation. The sight was $\frac{20}{50}$. The other eye had a short time previously become totally blind from detached retina.

Dr. George Reuling, of Maryland, reported (in Medical Society Transactions of that State for 1880), his views of an operation by which he removed the lens in its capsule without introducing the spoon.

He makes an upward linear section within the sclero-corneal border, being careful to make the incision large enough to admit of easy egress of the lens; does a large iridectomy, and then, by a sliding motion upon the lower part of the eyeball, and pressure against the lower lip of the wound, brings the lens within the wound, and, with a quick lateral stroke with a cataract scoop, knocks it from its attachments. In his later cases he has used a scoop made of a loop of fine wire. We are unable to give a favorable opinion of this method, as the doctor's statistics are so incomplete that we have no means of judging of its results compared with other methods. The few cases reported might have been as successfully operated by any other method.

THE ELECTRO-MAGNET IN EYE SURGERY.

Nothing that, in recent years, has been introduced into ophthalmic surgery, promises so much as the electro-magnet. During the past two centuries the magnet has been occasionally used to draw splinters of iron and steel from the cornea, and in many machine shops large magnets are kept for this purpose. The magnet, however, had never come into extensive use in ophthalmic practice, from the fact that it is not

sufficiently powerful to extract bodies firmly imbedded in the tissues, and that, by experienced hands, visible particles can generally be much more easily removed by other instruments.

A recent case of my own induces me to think this instrument of great service in certain cases in which the foreign body is visible.

Mr. B., age twenty-six, presented himself at my office March 10th, 1882. Four days previously he had been struck in the right eye with a piece of steel, while working at his trade as a blacksmith. Soon after the injury a general practitioner examined the eye, but failed to detect the presence of a foreign body. The pain continuing so intense that he could not sleep, and the inflammation increasing, the patient sought further advice. The conjunctiva was much inflamed, and in the lower central part of the cornea, about two millimeters from the sclero-corneal junction, was a small wound. In the iris, which was slightly muddy, a little higher than the corneal wound, I discovered a small black point. With a v. Graefe's cataract knife I opened the anterior chamber at the lower sclero-corneal junction. I then introduced the point of a strong electro-magnet nearly to the bit of steel, which now approached the magnet. fastened upon it, and was slowly withdrawn through the corneal wound. It was over two millimeters in length. Eserine was instilled, and a compress bandage applied. Soon after the operation the patient went to his hotel, slept twelve hours, and awoke without pain. The inflammation rapidly subsided, the sight improved, and in three days the patient returned home entirely recovered.

When the steel is visible, and can be grasped by the forceps, the usefulness of the electro-magnet has been questioned. In the case just related, the steel was obscured by slight hemorrhage from the sclero-corneal wound, and I feel sure that it could not have been grasped and removed by the forceps without far greater violence to the iris tissues, to say nothing of the danger of pushing it a small distance backward, and thus

injuring the lens. Although the forceps might have been as successful as the magnet in this case, I am thoroughly convinced of the advantages of the latter, and shall try it in similar cases before resorting to the forceps.

It is not in such cases as the one I have just related, however, that we obtain with the electro-magnet the most brilliant results.

Heretofore many eyes have been sacrificed on account of our inability to see, and consequent inability to grasp, the foreign body when it had penetrated the eye and lodged behind the iris, in the retina, vitreous or posterior part of the lens. In recent literature, however, so many cases of removal of iron and steel from the vitreous chamber by the electro-magnet have been reported, that the operation may be considered as fairly established. Extraction of the foreign body does not necessarily imply preservation of the eye, for the injury may have been so great as to preclude the possibility of its recovery without endangering its fellow.

When the foreign body is lodged in the vitreous chamber its removal should be attempted through a meridional incision of the sclerotic. The wound should be covered with a conjunctival flap. Either one of the poles of the electro-magnet may be introduced, as they attract with equal force. Considerable freedom of motion within the vitreous does not put the eye in jeopardy.

Too much space would be required to relate all the successful cases reported within the past few months. I will therefore briefly epitomize some of the earlier operations.

About fifty years ago, Dr. Meyer, of Minden, succeeded, by means of a powerful magnet, in withdrawing a piece of iron which had penetrated the eye. It was visible, but could not be grasped by the forceps.

Dr. MacKeowen, of Belfast, before the year 1874, removed steel from the vitreous chamber with a bar magnet about eight inches long, one inch broad, and one line thick. It

tapered to a point at each extremity, and was used as a probe as well as an extractor. Dr. M. has recently discarded the bar magnet for the more powerful and useful electro-magnet.

Dr. Hirshberg, of Berlin, first tried an electro-magnet in 1875, but without success. Recently he devised a most convenient instrument, which has been adopted by most oculists. It consists essentially of a single chromic acid cell, connected with a powerful induction coil surrounding a cylinder of pure soft iron. The extremities of the cylinder, which are introduced into the eye, are small and curved—the one $\frac{3}{4}$ and the other 5-4 of a millimeter in diameter.

THE ACTUAL CAUTERY NEEDLE IN THE TREATMENT OF CONICAL CORNEA.

In *Volume XXXII of the Transactions of the American Medical Society*, Dr. Chisholm, of Maryland, reports a case in which he operated for conical cornea on both eyes of a female twenty years old, with actual cautery needle. Others have preceded him in this method of operating; but, so far as I am aware, he is the first one to apply it in this country.

Those who have had experience in the treatment of this troublesome disease, know that all existing methods of treatment are very unsatisfactory. Every improvement on the present methods of treatment is therefore hailed with great satisfaction by ophthalmic surgeons.

The operation of trephining the cornea, requires to be performed several times before sufficient contraction of the cornea can be obtained to reduce its bulging, while the excision of a portion of the cornea is sometimes attended with bad results.

Dr. Chisholm punctured the cornea with an ordinary sewing needle heated to a white heat in the flame of a spirit lamp. When the needle was rotated and withdrawn, the aqueous escaped in a jet at least a foot high.

There was very slight reaction after the puncture of the left cornea, which was done some weeks before that of the right one, but the reaction in the latter eye was considerable. It subsided, however, in about six weeks.

Before the operation, the patient could count fingers at only one foot, while some weeks later she could count them at six feet. Eight months later the corneæ were much flattened, and an iridectomy, which was not performed on account of the delicate state of the patient's health, promised much improvement to vision.

SPONTANEOUS REDUCTION OF DISLOCATED LENS.

The following being a very unusual case, I thought it of sufficient interest to report.

On February 28, 1881, Mr. B., aged forty, laborer, presented himself at my office, complaining of pain, inflammation, and impaired vision in the right eye. Several months previously, he had been struck on this eye with a stick of wood, since which time his sight had been impaired, but he had not suffered pain until recently.

The palpebral and ocular conjunctiva was much inflamed and somewhat chemotic. The clear lens was seen resting in the anterior chamber of the upper border, only reaching as high as the upper edge of the widely dilated pupil. The iris was pushed quite far backward and vibrated upon the slightest motion of the eye. There was slight hypopium. Could count fingers at three feet.

As the dislocated lens was the cause of all his trouble, I advised him to enter the hospital and submit to its removal. He being unable to undergo the operation at that time, I applied a five grain solution of nitrate of silver to the lids for some days, when to my surprise the lens was found to have returned to its normal position and the vision was considerably improved.

Some months later, when I last saw the patient, the lens still retained its position and the irritation of the eye had subsided.

OPTIC NERVE STRETCHING.

Before the Medical Society of Madrid, Dr. Wecker read a paper (*Klinische Monatsblætter fur Augenheilkunde, June*, 1881) describing an operation more curious than useful, as showing what the human mind can conceive in surgical operations. It consists in the stretching of the optic nerve in certain cases of blind eyes, to observe its effects upon the nerve centers. With the somewhat visionary object of lessening pain and reducing the degree of hallucinations, he cuts the internal rectus muscle, catches the optic nerve with the strabismus hook, and draws the insertion point of the optic nerve as far as possible forward. He uses considerable force in pulling it around, and says there is no danger of injuring the brain or its membranes.

Following the example of Wecker, Dr. Kummell, of Hamburg, has performed the same operation several times (*Deutsche Medicinische Wochenschrift, No.* 1, 1882), upon nearly or quite amaurotic eyes. Differing from Dr. De Wecker in his object, however, Dr. Kummell performed this operation for the purpose of restoring or improving vision of blind or nearly blind eyes. He records improvement in two out of seven cases operated upon.

In both of these cases the improvement was very slight, both patients being able to count fingers at one and one-half feet before and two feet after the operation. A possible increase of six inches in visual distance will scarcely induce our amaurotic patients to submit to this heroic treatment.

ANTISEPTIC TREATMENT OF EYE OPERATIONS.

In the light of experience, it is unnecessary to defend the antiseptic method in many surgical operations. It has made

operations popular, which, before this method of treating the wound was introduced, were certainly unjustifiable. In 1879, the pathologist at the Vienna General Hospital told me that deaths from septicæmia and pyæmia were, under the strict antiseptic treatment followed by most surgeons in that institution, rarely observed, while, previous to the introduction of that treatment deaths from these causes were very common.

In view of the favorable results obtained in other branches of surgery from the antiseptic method, several oculists have applied the same precautions to prevent suppuration after eye operations. The results of these trials have not all been favorable.

Dr. Pagenstecher always uses it in his new method of cataract extraction, and considers it very essential to prevent infection of the vitreous body with septic germs. He carries out the details very thoroughly, syringing the lachrymal sack with the carbolic solution when there is suspicion of possible infection from disease in that passage.

Dr. Just, of Zillan (*Centralblatt f. prac., Augenheilkunde*), began the antiseptic method in cataract operations in 1878, following the recommendations of Professor v. Graefe, which consist in washing the eye previous to the operation with carbolic acid solution, disinfecting the instruments with alcohol, bandaging the eye with lint moistened in boracic acid solution, and a protective compress. His experience has been directly contrary to that of Dr. Pagenstecher. In his two hundred last operations previous to the application of this treatment, he did not have a single suppuration of the cornea, but was induced to try the method on account of the favorable results obtained in operations complicated with blenorrhea of the conjunctiva and lachrymal passages after disinfection of these parts. But, unfortunately for the advocates of antiseptic eye surgery, he had, among the two hundred and seven cataracts operated under strict antiseptic precautions, nine cases of suppuration of the cornea.

It is difficult to explain this unfavorable result, more especially as Dr. Pagenstecher considers this method so beneficial in his hands. It is probable, however, that suppuration usually arises from some cortical substance left, and the reason Dr. P. had so few cases of suppuration, is because he removed the entire lens in its closed capsule.

SYMPATHETIC OPHTHALMIA AND OPTICO-CILIARY NEUROTOMY.

The discovery that in certain diseases of one eye its fellow may become sympathetically involved, and in this way cause total blindness, is one of the most important of which ophthalmology can boast. Although the facts had been hinted at and imperfectly understood before Mackenzie's time, yet it had not been studied and brought down to a scientific basis before his investigations on the subject.

That the track or course of the inflammation from the diseased to the healthy eye should still remain undetermined, seems rather strange. It has been conceded by most ophthalmologists, that the explanation of its origin, simply as a reflex inflammation, is insufficient, and the view is generally adopted that the inflammation has a continuous course either over the ciliary or optic or both nerves.

Professor Snellen, of Utrecht, at the International Convention, gave as a plausible hypothesis, that sympathetic ophthalmitis is to be regarded as a metastatic specific inflammation, in which specific parasitical inflammatory elements are conveyed over to the choroid of the sympathizing eye through the dilated lymph-paths.

Dr. Ayers publishes (*Archives of Ophthalmology, Vol. X, No. 3*) the result of the pathological investigation of eight eyes, including sympathetic irritation or inflammation, in all of which he found a diseased condition of the ciliary nerves, and as other observers have found similar conditions, it is reasonable to conclude that these nerves are certainly implicated in the transmission of the inflammation. It is stated

by Mauntner and others, that we have anatomical proof that the optic nerve is the course of communication. We may thus safely conclude that to prevent sympathetic ophthalmia, we must interrupt the connection of both the optic and ciliary nerves, between the diseased and healthy eye.

There is little new in the treatment of sympathetic ophthalmia, which at best is very unsatisfactory. In the early stages mydriatics should be used, but should be discontinued when the iris has become adherent to the lens capsule. The patient should be kept in a dark room, or have the eye protected with a dark bandage. We should use mercurial inunctions in the temples in the beginning, and later, quinine and iron tonics should be used as indicated.

During the active stages of the inflammation, no operation upon the diseased eye is admissible, unless when the tension has become excessive, we may perform sclerotomy with good effect. Iridectomy upon a sympathetically inflamed eye has nearly always resulted disastrously, the coloboma closing very rapidly and leaving the eye in a worse condition than before.

Our resources in this insidious and destructive disease are therefore quite limited, and we should consequently be doubly energetic in removing every possible cause of the disease before it is beyond our control.

The extraction of cataracts in eyes which have undergone sympathetic irido-choroiditis has been so unsatisfactory, that Dr. Critchett, of London, was induced to try the needle operation in this class of cases. The experience (*The Royal London Ophthalmic Hospital Reports, Vol. X, Part* 2), of this careful operator has been so favorable, that I think his method should be adopted to the exclusion of more dangerous modes of operating. I will give a case reported by Dr. Critchett, which will best show his method of operating.

"Henry L., aged twenty-two. When ten years old, he wounded his right eye with a packing needle, penetrating the ciliary region deeply, and destroying the sight. Some months later he came under my care at the Moorfields Hospital, with

sympathetic inflammation of the left eye. The right eye was removed, but the disease progressed in the other, and the boy became blind. I declined to operate then, but expressed a desire to see him at a later period. He was admitted into a blind school, and for nine years he was educated as a blind boy. At the end of that time, in December, 1877, he came to me at the Middlesex Hospital. I found the tension normal, the anterior chamber good, the iris and capsule presenting the appearance usual in these cases. There was faint perception of vivid colors, but no definition of objects. The patient was admitted into the hospital, and, after he had been placed under the influence of an anæsthetic, I proceeded to perform the operation in the following manner: Using a speculum, and fixing the globe, I introduced a fine needle through the cornea, and directed the point to the center of the opaque capsule. This proved so tough that the point of the needle would not penetrate, and I found, that if I continued to thrust on the point, I pushed the capsule back, with a risk of dragging on the ciliary region, or separating the iris from its ciliary attachment. I therefore kept the point gently pressed on the surface of the capsule, and by making a rapid rotary movement, on the principle of the gimlet, I succeeded in partially penetrating and entangling the point in the substance of the capsule. I then introduced a second needle from the opposite side, and by bringing the penetrating force of one needle to bear upon the other, I pierced the tough capsule with both; then, by separating one point from the other, I succeeded in making a rent in the center. This was followed by the escape of a small quantity of lens matter of the consistence of cream cheese. The operation gave rise to a very slight reaction, and an interval of two months was allowed to elapse, during which the soft lens matter was absorbed, and the capsule closed again. The same operation was repeated with greater facility and with the same results; more soft lens matter escaped, but to a less amount; this again was gradually absorbed, and in the course of two months the capsule closed once more. For a third time the same operation with two needles was performed.

and on this occasion I was rewarded for my perseverance by obtaining a small round clear space, through which rays of light could penetrate to the retina, so that, after an interval of a few months, with a $+3\frac{1}{2}$-inch lens he saw $\frac{10}{50}$, and with a $+2\frac{1}{2}$-inch could read *Jaeger No.* 2. The patient has gone to America, having accepted a situation there as a church organist; but before he left, in August last, he was seen, and his vision tested, by Dr. Warlomont, of Brussels, who was in London at the time. Practice had improved the sight, and with the glasses for reading, he could decipher a few words of *Jaeger No.* 1."

In treating a patient with a blind eye, painful either from injury or degenerative changes, we should either enucleate or perform section of the optic and ciliary nerves. In a recent treatise on diseases of the eye, Dr. Noyes, of New York, gives advice which to my mind seems fatal to the best interest of these unfortunate patients. He says:

"If an iridectomy in the offending eye, or removal of a foreign body or of a lens, can allay its irritability, while assiduous care is given to the patient's surroundings, I refrain from enucleation so long as the symptoms of the fellow eye are mainly those of irritation. But if actual inflammation, as shown by pupillary adhesions or other signs, takes place, and does not yield to atropia vigorously tried, or if neuro-retinitis appear, enucleation is the safe and urgent thing."

Now, it is abundantly shown by experience, that the enucleation of the offending bulbus will but rarely improve the condition of an eye already sympathetically inflamed; that, once established, sympathetic inflammation is nearly always sure to go on to total destruction of sight. It is therefore our duty not to delay until the disease is beyond our control.

As a substitute for enucleation, optico-ciliary neurotomy has been largely practiced within the past few years. This operation was first brought to the notice of the German surgeons by Schœler, in 1879, and at about the same time M. Boucheron published his experience with it in France. Among the large number who have performed it, a variety of opinions

would naturally be expected, which indeed have been expressed. Some, among whom is v. Graefe, of Berlin, have, on account of early failures, abandoned the operation. Schœler, among many others, after extensive experience and matured consideration, is a very strong advocate of the operation, properly performed in a proper class of cases. There is little doubt in my mind but the operation will grow in favor as we acquire more knowledge as to the selection of our cases and the best method of operating.

Eyes containing large foreign bodies, badly deformed eyes, and those containing tumors, as well as those in which there is a probability of excessive hemorrhage from an atheromatous condition of the arteries, enucleation should be preferred to optico-ciliary neurotomy.

In the early history of the operation, oculists contented themselves with simply severing the optic with its accompanying ciliary nerves, but repeated return of the unpleasant symptoms induced certain operators to remove a portion of these nerves, under which improvement the result has been more successful.

Those who have operated by removing a portion of the nerves, have usually severed the internal rectus, or, following Meyer, have cut both recti and both obliqui, rotated the eye strongly outward and taken away a portion of the nerves, varying in length from four to six millimeters. This appears to me to be doing unnecessary violence to the eye, to avoid which I have had made (by Shepard & Dudley, New York), a pair of double scissors, with which I can remove a section of these nerves through a small conjunctival wound without severing any of the muscles, and thus unnecessarily complicating the operation by cutting off a source of blood supply to the enervated eye. These scissors are made by placing two curved scissors parallel at the desired distance apart. They should be made as light as possible and approach each other at the points so as to facilitate [illegible]. The pair I have removes a section [illegible] long, but they could be made so as to remove a still longer section, thus giving

greater certainty that the nerves would not reunite. The section remains between the blades, and is withdrawn with the scissors.

OPHTHALMIA NEONATORUM.

The application of measures prophylactic of ophthalmia neonatorum falls to the lot of the accoucher, rather than to that of the ophthalmologist. Nevertheless, at the risk of invading the province of the former, we shall summarize the year's progress in this direction.

Crede is convinced that, in the lying-in hospital under his care, ophthalmia neonatorum almost invariably arises by infection from the vaginal secretions of the mother during labor. This fact was his point of departure in prophylaxis.

First, he cleansed the vaginæ of the lying-in women, but with indifferent results; ophthalmia diminishing in frequency, indeed, but not disappearing altogether. He then began the systematic disinfecton of the eyes of the new-born infants, and at once his success was unqualified. After repeated experiments he selected as the most efficient prophylactic a solution of nitrate of silver (one to fifty), of which a single drop was introduced into each eye by means of a glass rod. Of five hundred and ninety-nine infants treated essentially in this way, not a single case of ophthalmia occurred within the first seven days. During this entire period only one case of this disease developed in the hospital, and that in a child into whose eyes the introduction of the solution had been inadvertently omitted. In former years the per cent of ophthalmia had ranged between 7.6 and 13.6. Among the six hundred mothers of these children were women of every condition—syphilitic, gonorrheal, catarrhal, clean, and unclean. The striking exemption of their offspring from ophthalmia can scarcely have been accidental.

In Crede's opinion, a two per cent solution of nitrate of silver is by far the safest and surest preventive. Not the slightest injury resulted from its use. In a few premature children only, was there increased serous and afterward mucous

secretion, which, in twenty-four or at most forty-eight hours, had entirely disappeared.

Olshausen employs a two per cent solution of carbolic acid: but this seems hardly as safe or efficient as a solution of nitrate of silver of corresponding strength.

Abegg, of Dantzig, however, simply cleanses the eye of the infant immediately after birth and employs the nitrate of silver in beginning ophthalmia only. He sees no objection to the prophylactic use of the nitrate under competent medical supervision. During the past ten years, he has had an average of a fraction less than three per cent of ophthalmia neonatorum. This result is certainly encouraging, though not so brilliant as that of Crede.

It would seem advisable to adopt the method of Crede, at least in all children born of mothers with suspicious vaginal discharges, and that of Abegg, in children born of healthy mothers.

CARBOLIC ACID IN TREATMENT OF GONORRHŒAL OPHTHALMIA.

In *Vol. X, Part 2, of the Royal London Ophthalmic Hospital Report*, Dr. Burnham reports three cases of gonorrheal ophthalmia successfully treated with carbolic acid lotion.

The first case was that of a female twenty-one years old. When admitted, the lids of her left eye were much swollen and brawny, and were everted with much difficulty and imperfectly. The ocular conjunctiva was so chemotic that the margins of the cornea could not be seen. As far as visible, the cornea was unimpaired. There was a copious purulent discharge. The treatment consisted in the frequent use of a lotion of one part carbolic acid to twenty parts of water, and frequent cleansing with iced water. The lids were everted and bathed with the lotion six times in twenty-four hours. The patient also applied the lotion to the eye every half hour, and during the intervals kept the eye well bathed with iced water. At the end of forty-eight hours the improvement was considerable.

This treatment was continued for ten days, when a solution of one in forty was used part of the time until a month from the time of admission, when she was discharged cured, with the exception of a slight conjunctival injection.

A second case in which there was extensive corneal ulceration with falling forward of the iris, was treated the same as the former case, with almost as rapid improvement.

In the third case, in which there were extensive corneal ulcers and intense chemosis, so that only the central third of the cornea was visible, with very abundant discharge, the same treatment was followed. After seventy-two hours treatment the whole cornea was visible; a deep excavation was seen in its upper third. He was discharged fourteen days after admission, when there was no swelling of the lids; their conjunctival surface was normal in appearance, the ocular conjunctiva was still injected. The lower part of cornea was clear, with healing ulcer at the upper portion. After sleeping several hours there was only slight gumming together of the lids.

Dr. Burnham concludes, from his experience: "That carbolic acid, in strong solution, is a powerful and convenient remedy in gonorrheal ophthalmia; that it gives the patient but little discomfort, and exercises a marked astringent as well as antiseptic influence, together with a beneficial action on the cornea, especially in cases in which there are more or less advanced semi-transparent excavations, so often ending in perforation, or even destruction of the cornea, under other modes of treatment."

TREATMENT OF GONORRHEAL OPHTHALMIA.

I have translated the following short article, by Dr. Fuchs, of Vienna, from the July number of *Centralblatt fur Practischi Augenheilkunde*, 1881, as it presents, in concise form, his treatment of this dangerous disease:

"Gonorrheal ophthalmia belongs to the most dangerous diseases of the eye. In severe cases it is seldom that the cor-

nea is preserved from suppuration. Therefore the great number of the methods of treatment proposed. The different methods of treatment are directed to the attainment of the following points: lessening of the heavy pressure upon the eye-ball, diminution, and removal of the secretion. The former of these objects seems to me to deserve the greatest attention, while to it, principally, is attributed the suppuration of the cornea. The pressure proceeds from the conjunctiva, which is chemotic around the cornea, and is often put upon the stretch through infiltration of the tissues. To this is added the pressure which the equally swollen and stretched lids produce upon the chemotic conjunctiva. Through this pressure the vessels passing to the edge of the cornea are compromised and the corneal circulation is impaired. Attempts have been made to overcome this injurious pressure by dividing the outer commissure, as well as by scarification of the chemotic conjunctiva. Unfortunately, often both of these means fail. Therefore, Critchett, in a very severe case of gonorrheal ophthalmia, resolved upon a very energetic expedient. He divided, upon a grooved director, the upper lid to the edge of the orbit, everted the flaps and fastened them to the skin of the brow with sutures. In this case the cornea remained intact, and in eight weeks the two halves of the lid were united. The remaining deformity was small. There is no doubt but this procedure meets the indications very completely. On the other hand, however, it is to be feared that in some cases the flaps formed of the upper lid might shrink so much that it would not be possible to get good union. Then great deformity would result, necessitating a blepharoplastic operation.

"The history of the following case will show how I attempted to obviate the disadvantages of Critchett's operation:

"On April 13th, 1881, a strong man thirty years old was taken into the clinic of Professor Arlt. He was suffering from florid gonorrhea, and the right eye had been diseased for about fourteen days. At the time of admission the swelling of the lids was very great, as was also that of the conjunctiva,

which in patches was of a grayish red to grayish yellow color, through exudation in the tissue. Suppuration of the cornea was thoroughly established. The left eye had become inflamed three days previously. In this eye also the lids were so intensely swollen that the bulbs could be seen only with great difficulty. The swelling of the conjunctiva was so great that it pressed upon the edges of the cornea as a chemotic wreath. Only a portion of the smoky center of the cornea could be seen. The anterior auricular glands on this as well as on the right side were much swollen. I proceeded with treatment in the following way:

"I first divided the external commissure with the scissors; then I deepened the incision with the scalpel as long as I felt any tension of the lids, and then continued the incision one centimeter beyond the outer orbital edge through the soft parts down to the bone. The tension of the lids was thus entirely overcome. The upper lid could be raised as high as desired. I then passed a thread through the lower lid, fastening it into the cheek, and thus producing complete ectropion and strong drawing downward of the lower lid. In the division of the outer commissure the zygomatico-orbitalis artery bled freely, which I intentionally did not stop. After the completion of the operation I confined myself to the application of iced compresses and oft repeated cleansing of the eye with water. In five days, when the sutures had produced suppuration, they were removed. The swelling of the lids and conjunctiva had greatly subsided, and the cornea had become entirely clear. Two days later the patient could open the eye spontaneously. Soon after this I began to treat the eye with nitrate of silver solution. At this period, without any known cause, a small facette, the size of a wheat kernel, appeared next to the lower corneal edge, which disappeared in a few days, leaving a scarcely visible opacity. The wound at the outer commissure healed without further interference, leaving a narrow linear scar. The lower lid returned completely to its normal position.

"This case belonged to the most severe of its kind, and I cannot avoid believing that without the treatment here prescribed, the right eye would also have been destroyed as the left one had been, as the inflammation of it was quite as intense.

"A week ago, another man was admitted into the clinic with acute blenorrhea, which he had acquired from a companion with gonorrheal conjunctivitis. In this case, only the left eye was affected. The inflammatory appearances, which had continued for three days, were not so severe as in the previous case, still there was present here in patches gray infiltration of the conjunctiva as well as much chemosis. The cornea was at the time of admission dim and smoky. I followed in this case the same treatment, and the result was also a rapid decrease of all inflammatory appearances. The cornea at the present time is also entirely clear.

"As advantages of this method, I wish to present the following:

"1. Lessening of the pressure of the lids, through the extensive separation of the soft parts and the orbicularis, and also by the drawing down of the lower lid.

"2. More easy exit of the secretions, on account of the ectropion of the lower lid and consequent inability to close the lids, and the ease with which the upper lid is raised to cleanse the eye.

"3. The considerable hemorrhage (in the second case the zygomatico-orbitalis artery bled freely)."

THE LOCAL USE OF IODOFORM.

At the thirteenth annual meeting of the Ophthalmological Society, at Heidelberg, in September last, Dr. Brettauer presented a case and related his experience in the local use of iodoform in conjunctival and corneal diseases.

The first case was that of a child, from whose conjunctiva the doctor had removed a tubercular growth, after which the disease returned, but was entirely cured by the protective ban-

dage and the free daily application of crystallized iodoform. The free conjunctival discharge that was kept up by the tumor was also cured.

His second case was one of pannus, after granular lids. The patient had been under his treatment for over two years, during which time all possible methods of treatment, with the exception of inoculation with blenorrhœal secretion, were tried without the slightest benefit. After about six weeks use of powdered iodoform freely dusted into the conjunctival sack, the vessels in the cornea began to disappear, and the sight improved so that he could count fingers at three meters instead of at one-half meter as when the use of the remedy was begun. He had similarly favorable results in a case of acute granulations with erosion of the cornea.

The doctor also tried it in two cases of interstitial keratitis without any observable improvement. His experience teaches him that it does not produce any irritation in diseases of the conjunctiva or cornea, but that it lessens the conjunctival secretion, destroys conjunctival or corneal granulations, and in sclerosis of the cornea, tends to clear it up.

In the discussion, Dr. Horner gave his experience as being favorable to its use as an ointment (one to fifteen parts of vaseline). A case of a tubercular conjunctivitis which had already produced disease of the cornea, was also cured by it. It was also useful in his hands in follicular trachoma.

Drs. Liber and Neidem spoke of the good results they had attained by the remedy in conjunctival and corneal disease. The latter gentleman had had rapid cure by it in lupus palpebrarum.

Dr. Carl said that it had produced small abscesses in the palpebral conjunctiva when used by him—this might have been due to an imperfectly pulverized preparation.

Dr. Haase had used it both as a powder and as an ointment in diseases of the conjunctiva and in blenorrhœa of the lachrymal sack, with favorable results.

NITRITE OF AMYL IN AMBLYOPIA.

In *Vol. XXVII, No. I, of A. v. Graefe's Archiv fur Opthalmologie*, Professor Leber, of Gœttingen, reports three cases of amblyopia with pale papilla and contracted retinal vessels much improved or entirely recovered by the inhalation of nitrite of amyl.

From the physiological action of this potent remedy we would expect, as indeed the Professor's experience shows, it to be beneficial in anæmia of parts depending upon the cerebral vessels for their blood supply. A few inhalations produces flushed face, sensation of fullness in the head, and vertigo, and as can be seen with the ophthalmoscope, congestion of the vessels in the optic disc. In rabbits this appearance of new vessels, or those which were previously invisible, can readily be seen.

His first case was that of a man seventy-one years old, whose vision had suddenly become greatly disturbed. Examination showed beginning cataract in both eyes, papillæ quite pale; arteries on the disk moderately contracted and markedly so in the retina.

R. E. counted fingers at ten feet with narrow visual field. L. E., S.=$\frac{20}{70}$. After treatment by the injection of strychnia into the temples, vision remained about the same. Nitrite of amyl was then inhaled for half a minute, until the face became flushed. With the exception of a free discharge of tears, nothing unpleasant was observed by the patient. At the same time the patient was given strychnia injection into the temples. Soon after patient counted fingers at seventeen feet with right eye, and sight improved to $\frac{20}{30}$ in the left one. The inhalations were continued for some days, when the sight was $\frac{20}{70}$ in the right, and $\frac{20}{30}$ in the left eye, in which condition it remained when last seen.

The second case was that of a man sixty-two years old, totally blind in left eye, and unable to count fingers from one half to one foot with right eye. Both papillæ were excessively pale, with much contraction of the vessels. After

treatment for more than three weeks by inhalations, the right eye counted fingers at twenty feet. Strychnia injections did not improve the vision any more.

The third case treated was entirely amaurotic in right eye, with vision $\frac{20}{200}$ in left. The papillæ were glaring white, sharply defined, with narrow vessels. Iodide of potash and mercurial inunctions were used on account of syphilitic symptoms. Under this treatment the vision increased to $\frac{30}{100}$ in left eye, at which point it remained. The inhalations of nitrite of amyl were continued for three weeks, during which time the vision improved to $\frac{20}{50}$. The Professor thinks that congestion of the vessels produced by this remedy brings about a better nourishment of the retina and papilla.

MASSAGE IN THE TREATMENT OF EYE DISEASES.

Dr. Hermann Pagenstecher discusses this subject quite fully in *Volume X, No. 4, of the Archives of Ophthalmology.* He has tested it in the treatment of certain diseases of the cornea, conjunctiva, sclerotic, and ciliary body.

Massage, as applied in treatment of the eye, consists in rubbing the edge of the upper or lower lid to and fro, or in a circular direction, against the eye. The rubbing should be done quite rapidly, but without any great pressure against the eyeball. The doctor says:

"The essential action of massage, especially as applied in a radiating direction, consists in the complete evacuation, for some considerable period, of all the blood and lymph vessels, both coarse and fine, around the sclero-corneal margin, as well as in the tissues of the cornea itself. In this way the vessels in question give greater capacity for absorbing whatever exudation may be present, and we can even go so far as to imagine that the latter may be let into the current of blood, and even eliminated from the eye in a purely mechanical manner. At the same time we are exercising an irritation upon the vasomotor system, and thus exciting better contraction on the part of the vessels."

The doctor found massage of great benefit in corneal affections where there were extensive opacities, either the result of pannus, keratitis, scrofulous or even parenchymatous keratitis, often after other treatment had ceased to produce an improvement. This treatment should not continue too long. It should only cause a moderate degree of irritation which should disappear within half an hour.

The case of a lady forty-four years old who, when a child, had a scrofulous disease of the eyes, leaving her vision very much impaired, shows the beneficial effects of this treatment. Dr. P. began the treatment for pustular conjunctivitis with yellow precipitate ointment and massage. In twenty-five applications of this treatment the sight improved from $\frac{5}{100}$ to $\frac{5}{30}$. In superficial corneal opacities the treatment seems most applicable. In conjunctival disease the doctor found it the most useful in chronic pustular conjunctivitis of old people, and in cases where the pustules are located around the corneal margin. These cases are very obstinate, and show great tendency to relapse. The obstinate forms of chronic pustular conjunctivitis are most rapidly cured by massage in conjunction with yellow precipitate ointment.

The doctor has also tried massage, in cases of episcleritis and diseases of the ciliary body, with good results.

He concludes by saying: "So far as regards the use and duration of massage in ocular therapeutics, we must be chiefly led by the existing condition of the eye and the subsequent reaction. Moreover, we must not be too sanguine in expecting a perfect cure from this remedy alone, in all the morbid processes above mentioned, and especially in affections of the cornea. Although we may cure almost all of the above forms of conjunctival and scleral affections, we cannot say as much for those of the cornea, for in the latter, massage in a large majority of cases is only applicable to certain stages, in which, however, when resorted to in season, it often effects surprising results."

ESERINE, PILOCARPINE AND HOMATROPINE.

Eserine has come into quite general use in ulcers of the cornea, certain stages of glaucoma, and a few other diseases of the eye. In ulcers of the cornea I can attest its value in quite a number of cases in which I began the treatment with atropine. Instead of lessening, atropine often seems to increase the photophobia, while eserine (grs. ij to aq. ℥j) usually diminishes it. According to Wecker, and others, eserine diminishes the tension in these cases and thus promotes healing of the ulceration. That it decreases tension in glaucoma is fully proved by experience, and that it lessens the danger of staphyloma and prolapse of the iris, by facilitating the outflow of the contents of the anterior chamber at the angle of the iris, is very probable.

Pilocarpine, the alkaloid of jaborandi, is also a strong myotic, and is used in cases similar to those in which eserine is of such value. An Italian physician, Dr. Carreras Arago, recommends it in glaucoma and in certain forms of chronic iritis and choroiditis of rheumatic or syphilitic origin, on account of its myotic as well as sialagogue and diuretic properties. It does not produce those severe frontal pains so often caused by eserine, it is less irritating than the latter, and hence is preferred in ulcers of the cornea, etc. It is used in solution of equal strength with eserine.

Homatropine has superseded atropine in cases where an evanescent action is desired. Its mydriatic effect passes away in from twelve to twenty-four hours. In an article published in the January number of the *American Journal*, Dr. Risly expresses his approval of the new mydriatic, and from experiments arrives at the following conclusions:

1. In solutions of two to four or six grs. to the oz., homatropine hydrobromate is competent to produce paralysis of accommodation.

2. In from sixteen to thirty hours this paralysis entirely disappears.

3. Dilatation of the pupil accompanies the paralysis and is more persistent—its probable duration being forty-eight hours.

4. It is more likely to produce conjunctival irritation than atropine or duboisine.

5. It produces far less constitutional disturbance than either of these older mydriatics.

QUININE AMAUROSIS.

It has become a recognized fact among medical men that an excessive dose of quinine may produce rapid and total deafness and blindness. The amount of discussion that has been given this subject in recent medical literature would lead one to think that it was a disease of great importance, but the fact that Dr. Gruening could collect only eleven cases at the beginning of the past year, shows it to be a disease of very rare occurrence. Since Dr. Gruening's collection was made, Dr. H. Knapp has reported three cases from his own practice.

Dr. Tyrrell kindly furnishes me with the facts in regard to a case that occurred in his practice over twelve years ago—before the subject had been discussed in medical literature. He was called to see a child two years old, in deep coma, perfectly deaf and blind, and with widely dilated pupils. The child had had no convulsions or other symptoms of brain disease, and had previously had some fever; the mother gave it an uncertain quantity of quinine on the point of a knife, which the doctor judged to be about three grains. It had taken three doses. The child not taking its food when presented, and becoming suddenly stupid, the mother's fears were excited, and the doctor was called. The coma passed off the next day, but the blindness continued for about fifty-six hours. The child apparently regained perfect vision. I will only add the conclusions that Dr. Gruening arrived at in regard to these cases:

"On reviewing the unequivocal cases of quinine poisoning with amaurosis (Rossa, Wecker, Voorhies, Gruening), we find

a remarkable congruence in their essential features. The patient, after the ingestion of a single dose or of repeated doses of quinine in varying quantities, suddenly becomes totally blind and deaf. While the deafness disappears within twenty-four hours, the blindness remains permanent as regards peripheric vision, central vision gradually returning to the normal after some days, weeks, or months. The opthalmoscope reveals an ischæmia of the retinal arteries and veins without any inflammatory changes. In view of the constancy of these symptoms and the uniformity of the ophthalmoscopic picture, we are entitled to demand for this distinct type of amaurosis a recognized position in the pathology of the optic nerve and retina.'

HOT WATER IN THE LOCAL TREATMENT OF EYE DISEASES.

In the October number of the *American Journal* for 1881, Dr. Connor, of Detroit, reported several cases in which he had used hot water in eye troubles. Knowing the beneficial results claimed for this remedy in gynecological practice by Emmett and others, he thought it might be equally useful in inflammatory troubles of the mucous membrane of the eye. It seems to possess the power of contracting the vessels without the irritating properties of ordinary astringents. It prevents the escape of white blood corpuscles and promotes healthy nutrition.

The doctor says that in many cases it is the only remedy needed, and in many others it is an important adjuvant to other treatment. The water should be applied as warm as the patient can comfortably bear it with his hand. The douching is done by the patient bending over a large basin of water and throwing it against the closed eye with the hand. The duration of the application depends upon the degree of the inflammation and the tissues affected. If it is superficial, a couple of minutes three times daily will suffice, but in deep seated or very chronic inflammation, it can be continued for five minutes every half hour, or at longer intervals, as the effect may indi-

cate. The doctor's experience has led him to the following conclusions:

"1. Hot water, locally applied, has the same power over inflammatory processes in and about the eye as in and about the uterus or any other part of the body.

* * * * * * * * * *

"3. It is clear that hot water materially limits acute and chronic inflammatory processes, stopping or preventing septic poisoning and suppuration by its power to destroy or hold in check the superabundance of white and red blood corpuscles and other protoplasmic elements, so numerous at every spot of inflammation or the disturbance of mal-nutrition.

"4. To accomplish these ends, hot water is an invaluable adjuvant to other means for treating all sorts of inflammation of the eye or its appendages.

"5. It must be applied systematically, as frequently and as hot as needful, to attain the end sought in any particular instance.

* * * * * * * * * *

"8. Used in the manner indicated, to accomplish the ends specified, hot water is an invaluable remedy in treating diseases of the eye. It will accomplish certain indications of treatment more certainly, more safely, more quickly, and more pleasantly, than any other single remedy with which we are acquainted."

SUPPLEMENTAL REPORT ON OPHTHALMOLOGY.

BY A. M. WILDER, M. D.

COLOR BLINDNESS, ETC.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: At the meeting of the Society last year, it was my privilege, as Chairman of the committee, to make a Report on the Status and Progress of Ophthalmology. Considerable space in that report was devoted to the consideration of color blindness and imperfect vision; the great importance of these defects, relative to the safety of the general traveling public; and the necessity of having some legislative action taken in this State, and on this coast, in view especially of the large amount of travel constantly going on both by land and by sea.

The action of the General Government at Washington upon this subject, was alluded to, and there were embraced in the report, as supplements, circular orders from the Treasury Department; orders from the Army and Navy Headquarters; the Connecticut State law, and the provisions for carrying out the same adopted by the State Board of Health; the Massachusetts State law, etc.

You will remember that a resolution was adopted referring the portion of the report devoted to color blindness, etc., to the Committee on Legislation. Inasmuch as there has been no session of the Legislature since our last annual meeting, and as there will be a session of the same during the coming winter, I have desired to call your attention again to this matter of such serious importance to the welfare, comfort, and safety

of the community), and to ask that some more definite action be taken to bring the subject before our law-makers, indorsed by the weight of the State Medical Society, with a view of securing such action as would oblige railroad corporations, shipping and steamship lines, to have their employes subjected to uniform, systematic, and exact examinations as to defects in the color sense and visual power. Referring you to the report made last year, and published in the transactions, I beg further to call your attention to some of the work that has been done in this direction during the past year in other portions of the country and abroad. The literature of color blindness is at present quite limited, but as its importance becomes more generally appreciated by the profession and the community at large, this deficiency will be remedied. Dr. Henry W. Williams, of Boston, Professor of Ophthalmology in Harvard University, in his recent work on the eye, published in 1881, gives considerable prominence to the question of color blindness; and no text-book or work on the general diseases of the eye can in future ignore this important subject.

According to Jeffries, the first publication, in the English language, on color blindness, was a monograph from Professor Wilson, of Edinburgh, in 1852, which failed to draw that public attention to the subject which its importance demanded, principally for the reason that at that time there was no ready practical test known for determining the degree of the defect.

In 1876, or 1877, Professor Holmgren, of Upsala, Sweden, published a monograph on "Color Blindness, its Dangers and Detection," and gave us the simple, sure, and rapid method of determining the defect, by means of the Berlin wools or worsteds.

Dr. [illegible], of Boston, [illegible] the great value of [illegible] in this direction, [illegible].

In 188[illegible], Dr. [illegible] "Color Blindness, its Dangers and Detection," [illegible] claims to have

been the second work published upon the subject in the English language.

Principally through the efforts of Dr. Jeffries, the United States Government very speedily took the matter in hand, and an abstract of Dr. Jeffries' book as a manual, together with the Holmgren worsteds, were issued to the Medical Officers of the Army, Navy and Marine Hospital Service, and examinations as to color blindness were made obligatory, in addition to the regular physical examinations required for entering into and promotions in the Army and Navy Service of the United States. The promptness with which our General Government grasped this question, has not been duplicated in the matter of railroad transportation, and until each State enacts careful provisions for enforced examinations, we need not look for anything very satisfactory to be accomplished in this direction. The Pennsylvania Central Railroad Company has, however, taken the matter in hand, so far as its lines are concerned, and has had between twenty thousand and thirty thousand of its employes examined. I have been unable to obtain the results of such examinations.

The enormous increase of late years in steamboat lines, coasters, ferry boats, tugs, etc. (thus largely increasing the danger of collisions from the misunderstanding and misreading of signals), and the network of railroads throughout the country, with their innumerable number of trains in constant motion, rendering it of the highest importance that the persons intrusted with the running and management of the same shall be fully competent, both to the stockholders and the traveling public, call emphatically for legislative action in this matter of color blindness and defective vision.

We have alluded to what has already been done by the Departments of our General Government. Connecticut and Massachusetts are thus far the only States that have taken legislative action upon the subject. The Connecticut law was very exact and complete, and its provisions were thoroughly carried out by the State Board of Health, in the

execution of which the necessity of the law was abundantly demonstrated.

The Massachusetts law was so loosely drawn as to render it nearly worthless, and to cause the Governor of the State to refer to its defects in his inaugural. It has since been referred back to the railroad committee for revision. The Act, as passed, appeared in the report of last year. Accompanying this paper is the original draft of a law as proposed to the Railroad Committee, but for which the present law was substituted.

In European countries the importance of this question has been much more generally understood and acted upon.

In Sweden, since 1877, all railroad employes, and employes of the merchant marine, have been compelled by Government enactment to submit to expert examinations, and to come up to a certain fixed standard before being permitted to enter service.

Belgium has followed suit, as will be seen by a report made by Drs. Warlomont and Moeller, a committee appointed by the Belgium Minister of Public Works, an abstract of which report forms a part of this paper.

France, Prussia, Austria and Switzerland, have fallen into line.

In November, 1880, the Council of the British Ophthalmic Society appointed a committee "to consider defects of sight in relation to the public safety, with authority to communicate thereupon with the Government on the part of the Society, if they should think fit." I present herewith an abstract of the first report of the committee, made through its Chairman, Mr. Brailey. The committee closed their report by saying: "The relation of the subject matter of this report to the question of the preservation of life in traveling, cannot fail to impress itself upon every one, but it has been thought expedient that our statement of the subject should end here, leaving to a future time the discussion of its practical bearings in relation to the use of colored lights in signaling, both by sea and land."

At the meeting of the Ophthalmological Section of the recent International Medical Congress, Mr. Bowman, the President, referred to this question in his opening remarks. The Section adopted unanimously a series of resolutions as to "tests of sight suitable to be enforced in the case of signalers and lookout men; and national arrangements for a uniform system of maritime, coast, and harbor signaling, with a view to the safety of life and property."

The remarks of Mr. Bowman, and the resolutions, are made a part of this paper. The committee which drafted these resolutions represented twelve different countries, and they recognized the action which had already been taken by our own Government, looking to the formation of an International Commission for the settlement of these questions, by embodying in the resolutions the following: "It is understood that this question of International Commission is about to be submitted to the Legislature of the United States of America, supported by a petition largely signed by scientific men of that country."

At the Centennial Meeting of the Massachusetts State Medical Society, held June 8, 1881, the following preamble and vote were unanimously adopted:

"*Whereas*, a petition has been presented to Congress, asking for the calling of an International Commission, to consider and agree upon standard methods of testing visual acuteness and color blindness, and standard requirements of these necessary qualifications in the navies and merchant marines;

"*Voted*, that the Massachusetts Medical Society heartily approves of the proposed International Commission, and hereby directs the Secretary of the Society to transmit this vote to Congress when next assembled."

The following Joint Resolution is at present before Congress:

"*Resolved*, by the Senate and House of Representatives of the United States of America, in Congress assembled, that the President is hereby authorized and directed to appoint, by and

with the advice and consent of the Senate, some suitable person, qualified for such service, who, with one line officer of the navy, and one medical officer of the navy, to be detailed or designated by the Secretary of the Navy, shall attend and represent the United States in any International Congress or Convention held by the authority of law in any European nation, to consider and act upon said subject; and the sum of ten thousand dollars is hereby appropriated, out of any money in the treasury not otherwise appropriated, to be used and expended, or so much thereof as may be needed, under the direction of the President, to compensate the person so appointed, and defray the necessary expenses of the person so appointed, and of the officers of the navy so detailed or designated. And the person so appointed, and the officers of the navy so detailed or designated under the provisions of this Act, shall join in the report of the proceedings of such Congress or Convention, and of the conclusions reached thereby, if any, to the President, to be by him laid before Congress, to the end that an international system of examinations for color blindness, and tests for visual acuteness, and standards for colors for signals used at sea, may be established by law."

I have prepared the following resolutions, which I have requested the Secretary to present to the Society, and I ask for them your favorable consideration:

Whereas, the members of the California State Medical Society fully recognize the importance of having definite and uniform standards of examination for color blindness, and tests for visual acuteness, in persons employed in the navy and merchant marine; and

Whereas, there is now pending before Congress, House Resolution No. 135, being a Joint Resolution relating to color blindness and visual acuteness in persons employed in the navy and merchant marine, and providing for the holding of an International Commission for the purpose of determining definite standards for the government of all nations; therefore, be it

Resolved, that the members of the California State Medical Society, assembled in annual meeting, do heartily approve of the provisions of said House Resolution No. 135, and do urge upon the California Delegation in the Congress of the United States, to do all in their power towards securing the passage of said Resolution; and be it further

Resolved, that the Secretary of this Society is hereby instructed to forward, at once, to each Representative and each Senator from California, now serving in the Congress of the United States, a copy of these Resolutions.

So little attention has hitherto been given the subject of color blindness that it is not easy to point out instances in which accidents have certainly resulted from this defect, but a striking case has recently been brought to light. *Vide Quarterly Journal*, for 1881, "A collision occurred several years ago between the tugboat Lumberman and the steamer Isaac Bell, near Norfolk, in which ten lives were lost. The Coroner's inquest developed no definite results, but it was supposed that one of the pilots was drunk. The pilot of the Lumberman was recently examined by a Marine Hospital Surgeon and found to be color blind, and it is reported that the other pilot has the same defect. In the investigation of the famous Norwalk drawbridge accident, it was shown that the red signal was properly displayed but was disregarded."

In my report of last year appeared the following:

"The dangerous defect in so large a number of persons cannot but explain the cause of many marine disasters otherwise unexplainable."

A classification in Europe of the reports of 2,408 accidents, between 1859 and 1866, showed:

"Want of skill, carelessness of the ship personnel, or accidents which it was impossible to prevent or avoid	1,562
"Error of pilot or captain	215
"Want of observation, or proper interpretation of the rules of the road	537
"Undetermined causes	94
"Total	2,408

"Under the last three heads are eight hundred and forty-six accidents which might have been due to color blindness or defective vision."

As it has been shown by very extensive examinations that about four per cent of all males in the civilized world are color blind, it is fair to suppose that the same proportion will be found in the service of railroads, navies, and merchant marines. Experience has proven this to be true. From the same process of reasoning we may easily infer that four per cent of accidents may be traced to defective color sense; but allowing that only one per cent of accidents arise from this cause, the responsibility is not lessened, and the necessity for protection remains the same.

I have devoted some space to the question of "expert testing," for the reason that there is a disposition on the part of the laity, and I am sorry to say, on the part of some members of the profession, to make light of the whole subject.

In face of the authorities I present to your consideration the action of the various civilized nations quoted, and the action of our National Government, it seems to me that this Society cannot fail to appreciate the importance of having not only international and national provisions for protecting our navies and merchant marines, but also the vital necessity of having legislative action in this State for the protection of persons traveling by rail, on our internal waters, and coast lines. I would most earnestly urge upon the Society to take special action at this session, with a view of bringing the subject before the Legislature in proper shape for the securing of suitable enactments.

APPENDIX I.

Context of a Bill suggested to the Railroad Committee of the Massachusetts Legislature, in place of which was enacted the Law which appears in my report of last year.

"SECTION 1. Every railroad corporation within this Commonwealth, shall, at its own expense, on or before the first day of November next (1881), cause every person within its employ as locomotive engineer, or fireman, train conductor or brakeman, station agent, switchman, gatetender, or in charge of signals, to be medically examined with regard to his visual power and color blindness, and shall, after said first day of November next, cause every additional person employed by it in any of such capacities to be so examined before entering upon his duties, and shall thereafter cause all such persons to be, from time to time, re-examined with respect to visual power and color blindness. All such examinations and re-examinations shall be conducted in the manner hereinafter provided for.

"SEC. 2. There shall be appointed by the Governor and Council, on or before the first day of June next, a sufficient number of medical experts to make the examinations of railroad employes as designated in Section 1 of this Act; said experts may be removed at any time, and their number increased or diminished at the pleasure of the Governor and Council; said experts shall, subject to the revision and approval of the Governor and Council, frame rules in relation to the examination and re-examination of said railroad employes in reference to visual power and color blindness, and the form of certificate to be issued to the examined, and may change said rules from time to time, subject to the said revision and approval; said

Governor and Council shall cause certified copies of said rules, on or before the first day of July next, to be published. at least once a week for three successive weeks in some daily newspaper in the city of Boston, and to be mailed to the post office address of every corporation operating a railroad in this commonwealth, and shall likewise notify said corporations, by advertisement and mail, of any changes in said rules, the expenses of which shall be paid from the treasury of the commonwealth. The Governor and Council shall decide on, and may, from time to time, change the fees said experts shall receive from the railroad corporations for services and expenses. Said experts shall report annually, on or before the first day of February, to the Legislature, the results of their examinations up to January first of that year.

"SEC. 3. Any railroad corporation operating a railroad in this commonwealth, employing, after the first day of November next, in any of the capacities specified in the first section of this Act, any person who does not possess a certificate of fitness duly issued in accordance with the provisions of this Act, shall, for each and every offense, be punished by a fine of not less than two hundred dollars or more than one thousand dollars."

APPENDIX II.

ABSTRACT OF DR. BRAILEY'S REPORT.

The report of the committee appointed to inquire into defects in sight in relation to the public safety, was read by the Chairman, Dr. Brailey, before the British Ophthalmological Society, at a special meeting held on the seventh of April, 1881. The inquiry extended over five months, and the examinations were conducted by gentlemen of experience. The material was collected from various sources, consisting of public institutions, schools (public and private), the metropolitan police, and the Coldstream Guards. The number examined was 18,088, of which 16,431 were males and 1,657 were females. Deducting from the males certain groups of cases, specially selected, in the expectation of finding peculiarities, there remained 14,846, with an average of color defects of 4.76; whilst among females, making similar deductions, there remained 489, with a percentage of only 4 per cent. Among male Jews it was 4.9; among male Friends, 5.9 per cent; among the male deaf and dumb it reached the high rate of 13.7 per cent; among the females of each group the percentage was less high.

All persons with pronounced blindness to red and green were found utterly incapable of naming with certainty a red or green light when exhibited singly. All failed also when the distance and intensity of illumination of the colored light were unknown. Red blindness appeared a little more common than green blindness. With regard to the causation of color blindness, Dr. Brailey regards it as due in most cases to a congenital physical defect, either in the eye or brain, occurring in the first instance as an accidental variation, and when

once existing, liable to be transmitted by descent. It was to the frequency of intermarriage that the high percentage among the Jews and Friends was to be ascribed. The heredity of the defect was strikingly illustrated by some cases alluded to by Drs. Frost and McHardy. The former referred to a color-blind who had seven sons, six of whom were known to be color blind. None of the daughters had the defect, but one had a color blind son. Dr. Brailey believes that color blindness, especially the slighter forms, may arise from the defect of color education in infancy, and hence it is that females, from the greater attraction colors have for them at an early age, and the greater attention paid, as a sex, to color distinctions, are less frequently the subjects of the defect.

The President alluded to the urgent need of imperial and international legislation in reference to color blindness and visual acuteness; also, to the great and disinterested service ophthalmologists, by lending themselves to these investigations, were rendering to the traveling community, whose safety could not be secured until the color blind had been eliminated, as could only be done by expert examiners, from those who were called upon to distinguish between colored signals.

APPENDIX III.

Remarks of Mr. Bowman, President of the Ophthalmological Section of the International Medical Congress of 1881, *with copy of Resolutions adopted.*

Mr. Bowman, President of the Ophthalmological Section of the International Medical Congress, held last August in London, in the course of his address used the following language:

"The precision of our modern methods of determining the accuracy of sight, and of the sense of color, has at length made it possible to urge with increasing earnestness, on authorities responsible for the lives of travelers, whether by land or sea, the necessity of enforcing adequate test examinations, not only candidates before engagement, but subsequently, at stated intervals, on all persons employed where good sight is an essential qualification. If this be important in regard to railway drivers, guards and signal men, it is even far more so in the maritime service. On land each Government is, in a very direct manner, held responsible to its own citizens, and accordingly much has been done of late years in several countries, though effectively I fear in very few, to institute strict periodical examinations under state authorization and control. As to these, perhaps a very close uniformity through different countries is not so very necessary, however desirable. But it is matter of common and urgent concern to all nations, that, on the open seas, on coasts and in harbors, a uniform system should prevail as to the due and sufficient and periodical testing of the sight of those who may be in the position either to give or to observe signals, on the prompt discrimination of which a multitude of precious lives may at any moment depend.

"And I trust it may not be very long ere such a uniform system of tests as science can now supply, and also the obligation to put these in force among their own subjects, will be willingly accepted by all civilized States."

Resolutions adopted by the International Medical Congress, London, 1881, *as to "Tests of Sight suitable to be enforced in the case of Signallers and Look-out Men, and other persons by Land or Sea, with suggestions as to International arrangements for a uniform system of Maritime, Coast and Harbor Signalling, with a view to the safety of life and property;" followed by explanatory remarks under the several articles.*

A—WITH RESPECT TO LAND.

(1) That the recommendations of the last International Medical Congress, held at Amsterdam in 1879, are accepted by the present Congress as forming the most suitable basis upon which every government may frame its own regulations as to its railway service. They are contained chiefly in Article XII of the "Projet d'un reglement pour l'examen des facultes visuelles du personnel des chemins de fer," laid before and accepted by the Ophthalmological Section of the Amsterdam Congress, which is nearly as follows:

"For admission as *driver* or *stoker* is required a healthy condition as regards habitual congestion or irritation of the eyes and eyelids; *for each eye*, complete field of vision; normal acuity and refraction; color sense at least four-fifths of the normal; total absence of commencing cataract, or any other progressive disease.

"For admission to other *railway service* is required a healthy condition as regards habitual congestion or irritation of the eyes and eyelids; *for each eye*, complete field of vision, total absence of cataract or any other progressive disease; *for one of the eyes*, normal acuity and refraction; color sense at

least three-fifths of the normal; *for the other eye*, sight of at least half the normal as regards both acuity and color sense."

B.—WITH RESPECT TO SEA.

(2) That in *ocean-going ships* and in *all steamers*, especially those carrying passengers, there should always be in actual control of the helm a person possessing *with the two eyes together*, *without glasses*, normal sight, both as to acuity and colors, and that, *in addition*, in such ships, *at least one* of the persons actually on the lookout should be similarly qualified.

(3) That, in vessels engaged in the coasting trade, every person liable to take charge of the helm should possess *with the two eyes together*, *without glasses*, sight equal to at least two-thirds of the normal, both as to acuity and colors.

(4) That all persons engaged in the marine signalling, ashore or afloat, and all pilots, should have normal sight, both as to acuity and colors, as defined in Article 2.

(5) That hypermetropic persons, although satisfying the requirements of Articles 2, 3 and 4, should, nevertheless, not be admitted, if before the age of eighteen they have a manifest hypermetropia of one dioptra.

(6) That re-examinations should be made at the age of forty-five.

(7) That the examinations should be conducted by persons of recognized competency, under the direction of a central medical authority in each country.

(8) That an international commission should be constituted, to fix upon such further measures as to signals as may be necessary for safe navigation, and especially, upon the standard colors, and the sizes of the signals employed.

EXPLANATORY REMARKS.

(The Numbers Refer to the Resolutions.)

A.—As to Land.

(1) The signal services on land, though quite as important, are not so purely an international matter as those having reference to the sea. Many countries have already established legislation in this respect, and others are introducing it by degrees. It is believed that the standards now recommended may be of general utility, especially in the case of conterminous countries. The mode of examination, for colors especially, is here, as at sea, of the highest possible importance.

B.—As to Sea.

It is obvious that regulations having an international character become every year more urgently required, from the increasing number, size, and speed of vessels.

In view of the practical difficulties with which all compulsory examinations are attended, it has been sought--

(*a*) To limit the examination in each case to what is strictly necessary.

(*b*) To require them only when absolutely indispensable, and of the smallest possible number of persons.

(*c*) To simplify the methods as much as possible.

On large ships, many sailors not required for the helm, or to be responsible for the lookout, may be admitted without certificate of examination; but as it will be in the interest of all to be possessed of such a certificate, which would represent a higher competency, it may be expected that many would themselves seek for it from whom it would not necessarily be demanded; and facilities for obtaining it should at all times be at hand in maritime ports.

(2) Good sight *without the aid of* glasses is required, because glasses fail to help just where clear sight is most needed, *e. g.*, in storm, rain, or fog.

Acuity of Sight.—Complete acuity is not more than sufficient, and even scarcely sufficient, having regard to the increasing number, size, and speed of steamers. But it will be practically enough if at sea this complete acuity is attained by the use of *both eyes combined.* The number of persons excluded under this rule will be much less than if complete acuity for *each eye separately* is exacted.

The acuity is supposed to be determined by viewing letters or signs at a certain distance, under a certain angle, on the principle of the test-types of Snellen.

Color Sense is supposed to be tested by pseudo-isochromatic tables, on the principle of those of Stilling, subject to control by the use of light transmitted through colored glass, in imitation of signal lights. This control will also aid in detecting central scotoma for colors, in the very rare cases where it might co-exist with the required acuity.

Holmgren's excellent tests have been already extensively adopted. But their use demands more skill in the examiner. Tests well selected on the principle of Stilling might be very well adopted as standards for ascertaining normal color sense, as well as definite degrees of color sense below the normal. The principle of Stilling has been recommended as affording a quantitative as well as a rapid qualitative test.

(3) A lower standard is fixed in the coasting trade (excluding steamers), because the vessels are smaller and the speed less. Moreover, a demand for full acuity would render it difficult to procure a sufficient number of sailors, as each hand must be liable in small vessels to serve at the helm.

(4) It is obvious that the persons here named must have full acuity and color sense.

(5) Persons having a manifest hypermetropia above that here indicated, would not possess, at the age of thirty-five or

forty, without glasses, the needful degree of acuity; it is better, then, both for themselves and the service, that they should not be admitted at all.

(6) The attendant practical difficulties have caused one re-examination only to be advised at the age of forty-five. It has been found that the very great majority of persons once admitted as having good sight, have retained it up to that age. A great number, no doubt, have been admitted hitherto without sufficient examination; still, it would not be practicable to institute a general examination of those already in the service. Nevertheless, it would be desirable to examine anew, in the case of passenger steamers, all those responsible as helmsmen and lookout men.

The Congress recommends that surgeons of ships should be qualified to exercise special surveillance as to the sight of those employed in these capacities on board.

(7) A central medical authority is requisite to insure the perfection of the system and its uniformity. He should propose the examiners, and be responsible for their fitness. They should be men of ascertained competency, and as far as practicable, qualified as medical specialists.

(8) The measures recommended in Articles II to VII should be brought into operation without delay. But an international commission would still have to determine the precise color of the glass, securing uniformity in that as well as in the size and disposition of the signal lights.

The Congress lay the greatest stress upon the appointment of this commission in respect of marine signaling, as quite indispensable for the attainment of the object in view. The commission would have to inquire into, and decide upon, many matters on which information is at present incomplete, and regarding which only a few points have been touched upon in Article VIII.

Every government, especially the maritime governments, should be requested to place one or more members on the

commission, and chiefly experienced naval officers and medical specialists.

It is understood that this question of an international commission is about to be submitted to the Legislature of the United States of America, supported by a petition largely signed by scientific men of that country.

The resolutions emanated from the Ophthalmological Section of the Congress, and were drawn up, in the first place, by a committee representing twelve different countries.

APPENDIX IV.

How the Color Blind see Colors, or the Physiology of Color Blindness.

But little has been done so far in the investigation of how the color blind see colors. Obviously it is very difficult to determine this matter, inasmuch as it is impossible for a normal-eyed person to make himself see as a color-blind.

Professor Holmgren, of Upsula, Sweden, has recently made great advance in this direction. The first results of his investigations were published in 1880, a translation of which, made by Dr. B. Joy Jeffries, appeared in the *Boston Medical and Surgical Journal* of June 2d, 1881.

Starting out with the proposition that to obtain a definitely correct answer to the problem of "how the color blind see," it is necessary, not only to preserve one's normal vision, but also to see with the eyes of the color blind. He says:

"The normal-eyed must therefore become a part of the color blind, and exist in his sense, whilst still preserving his own."

With the knowledge that color blindness is hereditary, and transmitted in accordance with certain laws, and that the defect is not constant, but affects certain of the offspring while sparing others, and also that the defect is transmitted unequally, so that one eye might be normal, or nearly so, while the other might be nearly or totally color blind; and further, that color blindness may be acquired, and affect the eyes differently, Professor Holmgren conceived the idea of finding some person or persons thus constituted, and by careful examinations ascertain by means of the normal eye of the individual how the color blind eye of the same individual saw colors. He was so fortunate as to have opportunity of examining two

such cases—one having monocular violet blindness, and the other monocular red blindness. The principle governing all the details of the examinations was that of comparison. He says:

"I let the normal eye compare the sensations of the color-blind one with its own, and put the result thus obtained in a form readily to be appreciated by all normal-eyed."

The full details of his examinations are promised in a future publication. "It has been assumed on good ground that the color blind see only two principal colors in the spectrum." These are the two fundamental colors of his subjective color system.

"In the violet blind the fundamental colors are red and green. The two base colors of the red blind are yellow and blue," and these results he states "to be in complete harmony with the Young-Helmholtz theory."

APPENDIX V.

Statistics of Color Blindness in Denmark.

Dr. O. E. DeFontenoy, in reporting on the progress which has been made in Denmark, as to the relations existing between color blindness and the practical pursuits of life, states that the authorities have carefully examined all the persons engaged on the railroads, and all candidates for employment on the lines are required to show that they have a normal color sense. In 9,659 cases examined, from eight years of age upward, including persons of all grades of society, 217 were found to be color blind; 1,001 of those examined belonged to the superior classes, and showed thirty-one defective, or a little over three per cent, while out of 3,491 of the lower classes there were 134, or nearly four per cent. Out of 2,714 children, from eight to sixteen, there were forty-one color blind, of whom thirty-six were boys and five girls.

All the examinations made showed a marked difference between male and female.

APPENDIX VI.

Abstract of Report to the Belgian Minister of Public Works.

Drs. Warlomont and Mœller, the committee appointed by the Minister of Public Works in Belgium, to report upon the vision of railway employes, with special reference to color blindness and acuity of vision, recommended, in their report, that in future all persons employed on the State railways should be placed, after examination, in one of the following classes, viz: *Very Satisfactory; Satisfactory;* and *Unsatisfactory*—the latter being excluded from entering the public service. The requirements of the first class to be: first, eyes and eyelids healthy, and free from all habitual irritation or congestion; second, normal acuity ($\frac{20}{20}$), refraction perfect within the dioptric; third, a normal field of vision; fourth, the power of distinguishing colors to the extent of $\frac{4}{5}$ at least; fifth, complete freedom from cataract or other disease.

For the second class, the conditions are the same, except that in one of the eyes visual acuity must be normal; in the other it may be $\frac{1}{3}$, and the perception of color must be at least $\frac{3}{5}$ in one and $\frac{2}{5}$ in the other.

Holmgren's color tests are recommended; errors of refraction to be tested in the usual way.

APPENDIX VII.

Expert Testing.

The *Boston Medical and Surgical Journal*, of March 10th, 1881, contained an editorial on the bill reported by the Railroad Committee of the Massachusetts Legislature, in reference to the examination of employes for defective sight and color blindness, complaining very strongly against the loose manner in which the bill was drawn. The *Boston Daily Advertiser* noted the editorial and, after quoting it, added: "The *Journal* is quite right, and it will probably find the strongest support among those railroad men who have been examined by specialists." Moreover, the experience of Connecticut, and several European States, shows that an examination for color blindness is not worth much unless it has been conducted by a specialist. In the bill, the words "some competent person" should read "a responsible ophthalmic surgeon." The bill was passed as reported by the committee, and subsequent experience has shown conclusively that the criticisms were correct. The Governor of the State called attention to the matter in his inaugural as follows: "Both in justice to the railroad employes and for the safety of the traveling public, it should be provided that the examination for color blindness and other defective sight, required by the Act of last year, be made by persons whose competency is beyond question. The statute is too loose in this particular."

The Governor and Council, as President and Directors of the Troy and Greenfield Railroad and Hoosac Tunnel, had full opportunity of witnessing the workings of the law (which has since been referred to the Railroad Committee for reconsideration). The *Journal* for February 2d, 1882, has another editorial on the question of expert examination. It refers to the

Act proposed to the Railroad Committee last year (in place of the one finally reported and passed), which appears in another part of this paper, and also to the one proposed for an Inter-State Commission, to agree upon what was fairly required of employes engaged in moving trains in respect to their power of sight and color sense, and standard methods of testing these by those competent to do so. It then goes on to speak of the report of the committee appointed by the Council of the British Ophthalmological Society, in November, 1881, "to consider defects of sight in relation to the public safety, with authority to communicate thereupon with the government, on the part of the Society, if they should think fit."

An abstract of this report accompanies this paper, but in this connection I use the *Journal's* quotation of the portion in relation to expert testing:

"Your committee becomes more and more convinced that a competent examiner is not made in a day, or even in a month, and that, even with large experience, much judgment and capacity are needful to interpret aright the acts of the examined. This necessity is perhaps most strongly exhibited in the case of intelligent persons who are completely color blind. Such persons, though they may have a much feebler appreciation of the difference between red and green, for example, than is normal, may, after accurate observation and comparison, separate the red skeins of wool from the green; when tested, however, at various distances with colored lights, their defects are startlingly apparent, and it becomes clear that they are totally unfitted for responsible posts in which rapid appreciation of color at a distance is required."

Professor Donders, the renowned author of the classical work on "Errors of Refraction and Accommodation," writes from Utrecht, December 15th, 1879, as follows:

"I must willingly testify that it is my full conviction that only medical experts, ophthalmic surgeons, should be employed in testing color perceptions and acuteness of vision."

From a letter written to Dr. Jeffries, by Professor Holmgren, under date of December 26th, 1879, I quote as follows:

"I must most decidedly insist that the testing for color blindness of railroad employes can be safely conducted only by competent persons. In my publication of 1877, I have stated this most definitely, and found no cause since then to change my opinion; on the contrary, my subsequent experience has forced me to hold still more closely to this belief. I remarked in my book, that at first, here in Sweden, the tests were left to the railroad officials. This, however, soon proved insufficient and useless; for example, one official found amongst his employes ten per cent color blind. Another official, on the contrary, found little or no color blindness. Subsequent examination proved both officials to be equally incorrect.

"Medical education is here *absolutely* necessary. My method is practically so simple that it would seem as if it would be successful in the hands of any physician. In my experience, however, this has never been the case. Time has ever shown that quite competent ophthalmic surgeons have misunderstood it, and applied it improperly. In Sweden the railroad surgeons have been practically and specially instructed *de visu*, by me, and we have had reason to be satisfied with this. There are many cases which *no* railroad official can detect or decide, and not even the ordinary railroad surgeon can be sure of. I therefore hold, what I have emphasized in my book, that the authorities must employ a man having the highest special knowledge, who shall be at the head of the control, and to whom all difficult and uncertain cases shall be referred; who thus shall have the final decision as to the employment or not of the particular person; and who shall instruct the railroad surgeons in reference to the detection and control of color blindness. To him all difficult questions are to be referred. He must be the highest appeal in all concerning this matter.

"It has been most fully shown that color blindness is no simple thing in its various relations to the railroads and the

marine. The laity must not therefore feel aggrieved that they have to rely so much on the authority of experts. A thorough knowledge of the *whole subject* is a necessary requisite for the testing of the employes. On the ground of what I have so far said, I must deny the competency of any railroad official to test the color perception of the others. Aside from all consequences, such practices are dangerous in two ways. First, the true color blind may be overlooked, and this will be practically all the more dangerous since the testing has thus decided their competency, and especially as these undetected color blind are thus *officially* assured that they can see correctly. Second, normal eyes may be thus declared color blind, and hence dismissed from service, which would be unfair in the highest degree. It is but right that every employe should be retained in his position who is thoroughly competent; and this can only be determined by an expert. I must express this more precisely. Only one expressly instructed in color blindness, can decide whether the color sense of an official is sufficiently normal to enable him, under each and every circumstance, correctly to distinguish the colored railroad signals. I here readily grant that not every normal eyed person possesses the other qualities necessary for railroad service; these are the requisites of the railroad official. There must, as I have repeatedly emphasized, be a strict line drawn between the competence of the physician and that of the railroad employe; each has his province and the border line must not be overstepped on either hand. The time has long been passed for knowing everything; division of labor is a law of our times, proving its advance. Railroad traffic is of course, here and there, a private system. In a certain sense, however, every railroad belongs to all mankind, and must therefore conform to the general public sentiment. The time is not, however, far off when we shall refuse to trust our lives and property to those roads where rules of safety are not thoroughly carried out.

"Here, in Sweden, the practice of medicine is not free—only those legally authorized can practice.

"We do not trust to the simple assurance of the butcher that his pork is free from trichinæ, and eat it, but require its being examined and stamped, officially, by a special expert, etc.

"In a word, in European eyes, railroad traffic does not afford the necessary safety, unless the color sense of the employes has been tested by competent surgeons, and with trustworthy methods. As to the methods, I need not remind that mine, with the worsteds, has proved preferable to all others. In support of this, we have only to compare results obtained by it, and those which the examinations on the German and Austrian roads gave."

The distinguished author, Dr. Hugo Magnus, with reference to examinations, uses the following language:

"We must express ourselves most decidedly and most earnestly, that under all circumstances this should be done only by those capable and experienced; and such are, in the largest majority of cases, ophthalmic surgeons. We do not hesitate to say that on the proper choice of those who are to carry out the test, its whole success depends. If the authorities make a mistake in this choice, the value of all the examinations is but questionable. Moreover, the security which the community feels for these tests is undermined. If the examination of the railway personnel is to be of value, the railroad authorities must look to it most carefully that this is placed in the hands of such persons only as from their special knowledge are fitted to undertake it. The examination by medical experts alone guarantees the requisite precision, and the consideration of all the possibilities accompanying such examination."

BACTERIA, AND THE GERM THEORY OF DISEASE.

BY G. M. STERNBERG, M. D., U. S. A.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: It was with considerable hesitation that I accepted the invitation to address you to-night, as the brief time at my disposal for preparation, and the pressure of other engagements, made it seem probable that I might fail to do justice to the important subject upon which I am to speak, and to my audience, composed as it is of practicing physicians, all more or less familiar with the progress of science and professional opinion as regards the role of those minute vegetable organisms known under the general name of *Bacteria*, in the etiology of infectious diseases. I have ventured to appear before you, however, from a conviction that any imperfections, due to hasty composition, which you may find in the written portion of my address, will, under the circumstances, escape severe criticism, and that the unwritten portion which will be in the form of explanatory remarks relating to the photo-micrographs of bacterial organisms, shortly to be projected upon the screen, will have for you the value of field notes made by one who has been for several years actively engaged in exploring the territory which has for so long a time been a *terra incognita*, viz: that relating to the etiology of the infectious diseases. My researches have had reference especially to yellow and malarial fevers, and have been prosecuted under the direction of the National Board of Health, principally in Havana and in New Orleans. Unfortunately they have not led to any definite results so far as the main question is concerned, and if these are germ diseases the

germ is still to be discovered, for my investigations relating to malarial fever, in which I followed the method of Klebs and Tomasi-Crudeli, throw great doubt upon the alleged discovery, by these gentlemen, of a *bacillus malariæ.*

You will remember that their researches were made in the vicinity of the Pontine marshes, near Rome, and that the method employed consisted in injecting beneath the skin of rabbits, bacilli obtained directly from the swamps and suspended in marsh-water, or the same organisms cultivated in their laboratory in a solution of fish-gelatine. These injections produced more or less febrile disturbance, and in some cases death, and as the result of careful temperature observations and post-mortem examination, the conclusion was reached that the rabbits suffered from malarial fever resulting from the experimental injections made. I have shown that the slightly intermittent character of the febrile disturbance produced by the injections of Klebs and Tomasi-Crudeli, also results from the injection beneath the skin of a rabbit of fluids which do not contain these *bacillus malariæ*, but in which other pathogenic organisms are present, as, for example, of human saliva, and that, even in healthy rabbits, daily oscillations of temperature, quite as decided as those recorded by these experimenters, are quite common, as the result of changes in the external temperature, a thermometer in the rectum often marking two or three degrees more during the hottest part of a summer day than in the early morning of the same day. The presence of black pigment in the spleen, and the changes in this organ described by Klebs and Tomasi-Crudeli, are also shown not to be peculiar to malarial fever, as the same appearances were presented in my experiments by the spleens of rabbits which died from the fatal form of septicæmia produced by the subcutaneous injection of human saliva, which I have described in a special report to the National Board of Health.

The direct examination of the blood of patients suffering from yellow and from malarial fevers, has also given me negative results.

While in Havana, as a member of the yellow fever commission, I gave special attention to this subject, and examined with the most powerful lenses—procured from Germany for this work—the blood of a large number of patients in the Military Hospital in every stage of the disease. No bacterial organisms were observed in any case, and the same is true, so far as my observations go, as regards the blood of malarial fever patients. I have not, however, had the opportunity to examine the blood of very many malarial fever cases, and have never succeeded in obtaining a specimen during the chill. These diseases—yellow and malarial fevers—are the very ones in which, upon theoretical grounds, we had the greatest reason to hope for discoveries supporting the germ theory. Both are diseases in which heat, moisture, and decomposing organic matter are important etiological factors. In both there is good reason for believing that the specific poison is particulate rather than gaseous; in both, this poison appears to be capable of self-multiplication external to the human body. All of these facts point strongly to a living organism as the essential agent in the production of the diseases in question. But, as already stated, this organism has thus far eluded our researches. Shall we then say that the germ theory is a myth and that it is disproved by our failure to demonstrate its truth in these diseases? By no means. Let us rather confess the difficulties of the undertaking and the inadequacy of our methods and apparatus. Enough has been done to show that there are no easy discoveries awaiting the *dilettante* investigator in this field, and if discoveries are finally made, it will probably be by the persistent and enlightened efforts of trained experts, who, supported by government aid or private liberality, may be able, if necessary, to devote their lives to the undertaking.

The failure to find parasitic organisms in blood, does not disprove the germ theory in any particular case, as it is possible, *first*, that these organisms are ultra-microscopic, and *second*, that they exist elsewhere than in the blood, as for example, in the alimentary canal. That ultra-microscopic

germs exist is proved by the fact that sterilized fluids exposed to the air soon "break down" and show the presence of innumerable bacteria of various species, while the most careful microscopic examination of the floating particles, everywhere present in the atmosphere, usually fails to disclose the presence of these organisms, which apparently multiply not only by fission, but also by means of germs which are so small as to be practically ultra-microscopic. Many of the micrococci are so small that it is with difficulty that they can be distinguished by the highest powers, and yet it is quite probable that they produce endogenous reproductive bodies still smaller.

But the second possibility seems to me to be more plausible than the first, and future investigations should, in my opinion, be directed to a search for pathogenic organisms in the alimentary canal, upon the surface of the bronchial mucous membrane, in the lymphatics, and in the tissues, rather than in the blood. Nature seems to have provided some method of removing bacteria from the circulating fluid when, by any means, they find their way into it in limited numbers. This is shown by the fact that microscopical examination, made shortly after the experimental injection of a fluid containing the bacteria of putrefaction, into the femoral vein of a dog, does not disclose their presence in the blood.

That acute or chronic blood-poisoning may take place from the introduction into the alimentary canal of contaminated water, or of food undergoing putrefactive changes, is supported by evidence familiar to all physicians. Since the researches of Pasteur have demonstrated that putrefactive changes in organic matter are due to the presence of bacteria, and that if these are excluded, the most putrescible substance may be kept indefinitely without undergoing change, it is evident that the pernicious effects of putrefying material introduced into the alimentary canal are due directly or indirectly to the bacteria of putrefaction.

That fermentation and putrefaction of food which was wholesome when taken, may also occur *in situ* in the alimen-

tary canal and there produce more or less serious disturbance of health, is also well known. But it is, perhaps, not so well known that bacteria of various forms and in great numbers are constantly present in the mouth and in the intestines of persons in perfect health. These are the commensals of man, harmless under ordinary circumstances, but possibly playing at times the role of pathogenic organisms. Is it not also possible and even probable that the specific organism or organisms which produce malarial fever locate themselves here, and by their presence and multiplication give rise to the phenomena of the disease. This hypothesis would explain the fact that malarial attacks may continue after the patient has removed from the place where his intermittent fever was contracted to a healthy locality. But it is not my intention to dwell upon this hypothesis, as my object is simply to point out to you certain possibilities which remain after the negative demonstration has been made, that there are no parasitic organisms in the blood of patients suffering from any of the so-called zymotic diseases.

The foundation stone upon which the germ theory will rest, if, as now appears probable, it is finally established upon a substantial experimental basis, is the demonstration, which we owe to that great French chemist Pasteur, that the decomposition of complex organic products is effected by living ferments. Let us not, however, be in too much haste to accept the generalization which Pasteur and many of his followers feel justified in making from the facts already known. It is true that many of these facts are of immense significance, and that the germ theory offers to us a rational explanation of the etiology and epidemic prevalence of infectious diseases, while all previous attempts to explain these phenomena amounted to little more than confessions of ignorance, clothed often in high sounding words, as in the stereotyped phrases "atmospheric and telluric influences," "epidemic constitution of the atmosphere," etc. It is true, also, that preventive medicine and therapeutics are already largely and favorably influenced by a rapidly extending belief in the truth of the germ theory.

There can be no doubt that the question is the most important one which has ever engaged the attention of the profession, and its definite solution in the affirmative would establish medicine upon a firm scientific basis. Unfortunately, however, there is much that is uncertain and contradictory in the experimental evidence bearing upon the question, which has been recorded, and it is only by the exercise of a spirit of scientific scepticism that we can hope to estimate, at their true value, the facts already ascertained, and to exclude the mistaken observations and deductions of over enthusiastic investigators. We must be careful, however, that our conservatism is not of the kind which results from self-satisfied ignorance, as the vagaries of an honest enthusiast are far preferable to the rhinoceros-like impenetrability to truth possessed by the man who passes judgment upon a case in advance of the evidence. A general review of the evidence in favor of the germ theory of disease would take more time, both in preparation and in delivery, than I have at my disposal, nor is it necessary that I should attempt it, as most of you are already familiar with this evidence. I shall, therefore, content myself with the statement that, in my judgment, the question is still *sub judice*, with a strong probability, however, that it will eventually be settled in the affirmative for a large proportion, if not for all, of those diseases usually classified as zymotic.

MEDICAL EXPERTS.

BY G. W. DAVIS, M. D.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: Prominent among the fundamental rules laid down for our professional observance we will find one which reads: "That, as good citizens, it is the duty of medical men to be ever vigilant for the welfare of the community, and to bear their part in sustaining its institutions and burdens; they should also be ever ready to give counsel to the public in relation to matters especially appertaining to their profession, as on subjects of medical police, public hygiene and legal medicine. Medical men should also be always ready when called on by the legally constituted authorities to enlighten coroner's inquests and courts of justice on subjects strictly medical. * * * But in these cases it is just, in consequence of the time, labor and skill required, and the responsibility and risk they incur, that the public should award them a proper honorarium." Now, this is fair and correct both in letter and spirit; but the last clause of the quotation does not seem to be properly appreciated by those who are always ready to exact such service of us. The tendency of the present age seems to be to care but little for physicians and surgeons, except for the use that can be made of them, and the public is more penurious in its dealings with them than with the most illiterate class of mechanics or manual laborers. It is presumed that there are but few of us who have been long engaged in practice, who have not been many times, perhaps, summoned before our courts of justice to testify as experts; to give our professional views in reference to matters which did not in the least concern us as citizens, and about which we

knew nothing except as medical men, and yet the idea of fully remunerating us for our time, labor and talent never seems to have been entertained by those who saw fit to require such labor of us. As citizens, we are bound to surrender certain rights and perform certain duties which are necessary for the good and protection of the community in which we live. Like others we must obey a subpœna issued legally, and as men we have no right to refuse to answer the summons, whether it suits our convenience or not, nor to demand even an explanation as to why or what we are expected to testify.

There is no alternative but to obey the order or suffer the consequences. In this respect the physician differs in no particular from any other ordinary witness. So much must be admitted by all of us; but our professional knowledge is our own capital, and if it be of value and benefit to others it should be paid for by them, and no court or citizen should have any legal right to demand it of us without tendering us a just compensation for it. We should have a constitutional right to refuse it on any other ground, or to decline to give any opinion at all unless we see fit, and no court should have the power to commit or fine us for contempt for such refusal. We should be protected in the right under all circumstances, to refuse to divulge any secrets that may have been communicated to us as professional men, when such disclosures were necessary for the proper treatment of the patient; provided, however, that such facts were not made known to us for the accomplishment of some criminal purpose, or as an explanation of some crime which the patient had committed or endeavored to commit. In some States it is even forbidden to disclose any knowledge gained in this way. If, however, we have once taken the wi ness stand or made our deposition in regard to any matter either of fact or opinion, we cannot refuse to submit to a cross-examination upon the same subject, or refrain from telling all we know about the case; and here is where attorneys are ever ready to monopolize our time for their benefit without tendering us the slightest compensation whatever.

We must, therefore, be on our guard and never allow them to take such an unfair advantage of us. We must think thrice and well before we testify at all as an expert, and remember, that when once we have testified *in extenso*, we cannot refuse to be examined again and again, if summoned, upon the same case. It should be so, that just so soon as we are placed upon the stand as a skilled witness, our duty to the State as an ordinary witness ceases, and no one can or should force us to give our professional opinion (formed from our special experience and acquirements), in court, any more than he could in our private office, and that we do an injustice to ourselves and to our co-laborers, in allowing an advocate to extort an opinion from us without a reasonable remuneration. Abstract justice and right, requires no man to render services to another which is no benefit to himself; and for every favor which he confers upon his fellow man, he is entitled to receive something that is tangible and just. Anything which he may see fit to do for nothing, is an act of charity on his part, and a matter which he must regulate by his own sense of duty and his conscience. This rule of action is carried out strictly in almost every vocation of life, except in the practice of medicine; but in this, our capital invested, which consists of our professional acquirments and skill, is considered public property. And our time, labor and knowledge are too often reckoned as the common property of the State as well as of the community in which we live. We evidently have done much to encourage this state of public opinion ourselves, by our too great anxiety and disposition to render eleemosynary services for rich and wealthy corporations, and individuals that are perfectly able and of right should pay us well for what we do.

Now I repeat, that as no man or body of men has any right to demand the time and labor of his fellow men without a reasonable compensation for the same, neither should our courts have the right to occupy our time and make use of our personal knowledge without rendering us an equivalent for the same. If the opinions of medical men be requisite to answer the ends of law, why should not they be paid as well as judges

who are to decide, and the lawyers who exert their abilities so often to defeat the aims of justice.

Physicians, from the necessity of their calling, are generally exempt from jury duty, military duty and other obligations that unavoidably interfere with the noble and humane pursuit of their profession; with what right and fairness, then, can they be expected or compelled to attend courts as experts, to the neglect of their business and patients, in order to settle some point which their professional education alone qualifies them to determine? A few argue that witnesses may be bribed to testify falsely, and that medical men are not more likely to resist temptation, when acting as experts, than any ordinary witness, and it is undoubtedly true that remuneration of a witness may exert an influence upon the minds of the jury as to his credibility; but it should be remembered that an expert is not presumed to be an interested witness whatever, nor allowed to express any opinion as to the justice or merits of the case pending, but simply to give his views and his reasons for coming to such a conclusion. He is called upon to testify as to facts, and to draw conclusions in regard to certain matters from his professional knowledge only, and not from anything he may have seen and heard from others, and his testimony is only valuable because his deductions are supposed to be drawn from scientific premises.

In many important trials the decision of the case depends entirely upon medical testimony, and it is an imperative duty devolving upon all concerned, to secure the most distinguished and reliable medical men as experts in order to elicit and defend the truth. All parties to a suit are certainly right in summoning medical men as witnesses when the point at issue can only be settled by medical opinion, and they ought to vie with each other in selecting the most able members of our profession, and not, as unfortunately too often occurs, summon only such men as can be used as the counsel may desire. It is true that neither court nor counsel can object to the employment of any medical man of the most reasonable knowledge as an expert, unless his character can be called in question, and if once

allowed to take the witness stand he cannot be objected to, no matter how dishonest or how imcompetent he may afterward prove himself to be; and this is the very reason why justice is so often defeated by medical men, and our profession disgraced by ignorant and dishonest individuals. It would be well if medical experts could be objected to as jurymen are, only the cause should be more clearly stated for such objection.

Science is *educated common sense*, and unless a physician and surgeon has a pretty full supply of that, he can never make a capable expert, no difference how much he reads and how great his observation. He must possess sufficient mental power to sound the depths of the human heart, as well as to correctly interpret the peculiar workings of the mind in health and disease.

The laws of evidence recognize no difference between questions of fact and questions of opinion, and require as prompt answers to the one as to the other. It is not often that we have time given us for reading up the case; we are called upon for our own opinion, and it is exceedingly rare that books are admissible as authority on the witness stand. It is not my intention, were I capable, to lay down or submit a formula for governing medical men when acting as experts, for I think it quite impossible to prescribe any rule to be closely observed under all circumstances. The very time we most need it, we would be the most likely to forget it.

A positive amount of ability is, however, absolutely necessary for the creditable performance of the duties of a skilled medical witness. He must be a man of good common sense and respectable scientific acquirements, of unimpeachable honesty, strong will, and unwavering determination. He must not allow his judgment to be formed or his opinions to be influenced by aught save the facts in evidence, and yet be modest and unassuming. He must have a pretty thorough and accurate knowledge of the special department of medicine and surgery which the case being tried may require, and not presume upon his ability to answer any and every question, bearing upon our art, that may be propounded to him by the

counsel. He must rather feel and acknowledge his inability to give satisfactory replies to questions which he may not understand, for it is almost impossible for any one man to be a complete master of our profession, or to be thoroughly informed upon every department. He must not allow the lawyers to mold his questions for him by stating questions to draw him out, but must keep calm and under perfect self control, never allowing himself to be flurried and harassed by the tricks and seeming impudence of the attorneys, nor forget the high and responsible position that he fills in virtue of his professional attainments. Nor should he ever fail to maintain his self-respect or swerve one inch from the line of truth, if he expects his opinions to be respected or his testimony to carry any weight.

His opinions must be founded entirely upon the facts in evidence, and his conclusions be drawn from premises incontrovertibly true, or they will be readily proven of no value. Whether his testimony has exerted any influence upon the minds of the jury or not, the medical expert must not feel himself aggrieved, as he has nothing to do with the prosecution or decision of the point at issue.

To conclude, I think it will appear very evident, from what has been said, that a medical expert is, in no sense of the term, an ordinary witness, and that his opinion is only valuable as an expression of science, and in order to be capable of giving such an opinion he must take time and trouble to examine thoroughly into and listen carefully to all the other testimony adduced. He should be well paid for his trouble and professional opinion, and it should not be expected or presumed that he can interfere with his other engagements or consume his time in attending to such matters without a liberal remuneration for services rendered. A law should be enacted in this State entitling a medical expert to a specified reasonable and just amount, to be paid by the State, county or defendant, as the agreement may demand, and that whoever first calls upon an expert for his opinion employs him professionally, and thus render themselves responsible to him for his

compensation. In many places such a fee can be collected by law.

The compensation for services rendered by an expert in this State is allowed or not allowed at the discretion of the court, and when allowed, it is, except in rare instances, exceedingly meager if not unjust.

Coroners should not expect medical men to answer a summons to give their opinion in regard to the causes of the death of persons whom they have not attended, or compel them to make post-mortem examinations to ascertain the cause of death, without a fair and proper remuneration. The same rule holds good in regard to making chemical analysis or rendering any strictly professional services whatever.

Many of the States of our Union discard, in a legal way, all distinctions between educated and regularly graduated medical men, and the unscrupulous and uneducated who see fit to call themselves physicians. It should not be so. It places us all upon a common footing, calling and treating every man a doctor who sees fit to style himself such, and thus holds us alike accountable for any errors they may commit, and we should recognize this fact and as far as possible protect ourselves.

There should be far more unity and harmony of action among medical men in their dealings with the public than there is at present, for no profession needs mutual aid and support as much as ours.

ILLUSTRATIONS OF COUNTRY SURGERY.

By H. JOHN CRUMPTON, M. D.

CASE 1. July 15th, 18—. Was called to Cobb Mountain, twenty-five miles from home. Found that Pope H., a well developed boy of sixteen, had, four days previously, placed his right hand over the muzzle of a shotgun, when it was discharged, and the load of bird shot entered the palm, no doubt severing the palmer arch, badly shattering the *scaphoid* and *semilunar* bones, fracturing the *radius* in its wrist articulation, thence plowing its way through the inter-osseos space for two-thirds the length of the forearm, where the ulna was fractured, and near where I found most of the charge, and extracted it by making a slight incision through the integument. Into the outlet thus made I introduced the nozzle of a Davidson syringe and threw a carbolized stream which made its exit through the palm, thus cleansing the wound in its whole length. Soon after the shooting there was very free hemorrhage, which was controlled by placing the boy in bed, resting the elbow on a chair by his side, holding the forearm vertically, and directing on it a stream of water from a mountain brook near by, which was of a temperature a few degrees above freezing. This was kept up for the ensuing ten hours, by which time—the outward flow of blood having long since ceased—the circulation was about driven from the limb. Seeing the dark, mottled appearance, old Mat. H., the boy's father, an old experienced frontiersman, knew this to be a bad omen and that a change must be made. His proceedings were novel and effectual. The cold water was discontinued, the arm placed horizontally and literally immersed in soft

pine gum, a substance about the consistency of balsam fir as found in market, and so remained up to my arrival. So well pleased was I with this stimulating antiseptic dressing of old Matt's, that I determined to continue it, lessening its viscidity with a liberal admixture of carbolized olive oil. The wound continued to do well all the way through, the inflammatory action never did run high, and the amount of suppuration was small and healthy in appearance. These ordinarily favorable symptoms, in view of the grave character of the wound, made me uneasy and apprehensive of masked trouble somewhere; besides which there was another disturbing element: early in the case great abdominal distress, at first traceable to dietetic imprudence, but later showing itself frequently without a moment's warning, when no such cause could be assigned. From this he was a great sufferer and made almost constant attendance necessary, as nothing seemed reliable for his relief but prompt hypodermic administration of morphia. There were none of the ordinary symptoms of tetanus, but certain, to me, important queries presented themselves. How far was the favorable progress of the wound traceable to the prolonged application of ice cold water, or to old Matt's sugar-pine balsam? Were the abdominal symptoms sympathetic with the wound, and in what way connected with the peculiar dressing used? Be this as it may, at the end of a tedious three months the boy was fully restored to his former robust health, the wound entirely healed, the wrist joint anchylosed, the finger and thumb semiflexed, the hand, however, still a very useful member—as old Matt. expressed it: "beating no hand at all badly." Toward the end of the case I had the kind co-operation of Dr. Alex. Anderson, of Anderson's Springs, to which circumstance much of the favorable results are due.

The much abused medical law makes liberal provision for a class on this coast, some of whom, coming at an early day, penetrated the wilderness in advance of the regular M. D., starting with no preliminary education, but after a rough and ready experience on the frontier, have developed into very

fair general practitioners, rendering acceptable service to a clientage who would not willingly exchange them for the most cultured. Two such were called to treat the case before me, but, each for himself, declined, on the plea that all that could be done was to amputate, which he was not prepared to do for want of instruments; thus showing a degree of shrewdness in keeping out of an ugly case, in which the prospect of receiving either cash, thanks, or fame was not brilliant.

CASE 2. November 12th, 18—. Was called five miles away to John F., a superb specimen of manhood, aged forty, weighing one hundred and eighty pounds, who, two hours before, had received a charge of buckshot in *dorsum* of right foot near its outer border just in front of *external malleolus*, the charge carrying with it into the foot several thicknesses of heavy boot leg through which it had passed, and which had materially lessened its force. In a space nearly two inches in diameter, with an outer border of integument only, everything, down to the *plantar fascia*, seemed to be destroyed, as the *cuboid* was broken into fragments as well as segments off the *os calcis*, *external cuneiform* and fourth and fifth *metatarsal* bones, and the soft tissues pulpified. Most of the shot, with the accompanying debris, were found within the area first described; some of the shot, however, scattered through the balance of the instep, one was cut out as far back as beneath the *internal malleolus*. After placing the patient reclining on a common settee, with the limb elevated over its sloping end, the wound was freed, as far as practicable, of its extraneous contents, a temporary splint adjusted to the sole and water dressings applied. After remaining perhaps two hours, there had been no hemorrhage and the patient was otherwise comparatively comfortable. I left in answer to another urgent call, promising to return as soon as possible; being fully impressed with the grave character of the wound, sent for an old friend to join me next morning with a view to amputation. I returned in a few hours to find that, during my absence, the patient had imprudently gotten up, when the wound com-

menced bleeding, which extended to *syncope* before controlled, by again placing him as before with the limb elevated. Following this great loss of blood, the state of exhaustion was so extreme that it was deemed prudent, for the time at least, to abandon all thought of amputation. There was no recurrence of the hemorrhage, but the man's condition required close attention to keep him from sinking. After a time, however, his general condition improved and the processes of repair started in so favorably that the desperate determination was taken to try to save the limb. Within the area named above, nearly all the soft tissues sloughed away; no particle of bone was taken out until showing loss of all vitality. I feel certain, however, that *all* of the cuboid, as well as clippings off the adjacent bones, were thus removed. Suppuration was profuse, with a tendency to the burrowing of pus about the ankle joint. Of course the healing of such a wound was slow, but at the end of three months the great loss of tissue was so far repaired with adventitious growth as to make us all feel sanguine of final success, and there was no need of further attendance beyond an occasional call, and the patient soon got around.

All antagonism on that side being destroyed, there is a tendency to draw the foot inward and upward; this, to a great extent, however, is corrected by a properly adjusted boot. The wound is about healed now, with the limb a very useful one; there is a slight lameness, but the man is a first class farm laborer. I had recently had an unsatisfactory experience with carbolic acid. In this case, through my old friend Dr. Boone, of Kelseyville, to whom I am indebted for other valuable suggestions, I determined to use the old-fashioned pyroligneous acid—a lot of which was distilled in the neighborhood for this purpose—than which, as a topical application, nothing could have acted better. In late works this agent is barely mentioned, as being superseded by more elegant preparations; change is not always progress. Perhaps one may be pardoned for indulging in a little self gratulation at the successful

application of conservatism, of adaptation of means to ends as above set forth. But no such happy reflections are justifiable in—

CASE 3. September 10th, 18—, S. B., aged sixty-five, of scrofulous diathesis, was accidentally shot by a gun loaded by himself, as he stated, with thirteen buckshot. The charge entered the outer and lower margin of right poplitial space; a pouch was observed just in front of the superior extremity of fibula, from which, by making a slight incision through the integument, twelve of the thirteen shot alleged to have been in the gun, were emptied. Judging from the site of the wound, and the point where these shot were found, and from other causes, the theory was formed, and acted upon for the time, that the knee joint had escaped injury. The patient was placed comfortably in bed, with the extended limb in a wire cloth splint suspended from overhead, a sufficient opening being left in it to allow free access to the wound. After the broken down tissues commenced sloughing, a more serious character of the wound was revealed than first imagined. After a long delay, which seemed almost unavoidable, having been joined by Dr. Jackson, of Woodland, a relative of the sufferer, the patient was placed under an anæsthetic and the wound was thoroughly explored, when amputation was determined upon, and the limb taken off near the junction of the lower and middle third of the thigh, Dr. Jackson using the knife; as we found that not only had the knee joint been opened, but some of the shot were imbedded in the condyles of the femur, whilst others had glanced along the surface of that bone for perhaps one-fourth its length.

Although the poor old man seemed to rally from the immediate shock of the operation, still, as he was well on the down grade of life, there seemed not sufficient vitality left to build on, and after lingering along for ten days, he passed away. We all understand the difference between "primary" and "secondary" operations; and had the true character of the wound been known, the limb ought to have been taken off as

soon after the shooting as possible. But conscience, a creature of cultivation, tells me that under the circumstances the result would have been the same. Two others saw the case early with me, only to confirm my own erroneous diagnosis—a case where union was *not* strength. At the time he was wounded the old man was five miles away, out in the mountains; was brought home on a stretcher. He laid out in the open night air several hours, and suffered intensely from cold before removal. His usual medical attendant declined going to his relief. 'Twas "Hobson's choice." I consented to be pressed into service, supposing that as soon as brought to his home I would be superseded; but this was not to be. I neglected to say sooner, that the poor old man, raised on the frontier, and always accustomed to the use of firearms, had for the first time in his life, perhaps, made a mistake by placing a double charge of buckshot—twenty-six instead of thirteen, as he had stated—in one barrel of his gun, and that he was shot by the accidental discharge of the double-loaded barrel, that number of shot, twenty-six, being found in the limb. Among other misfortunes besetting our pathway, blow-flies gained access to the wound, and soon it was infested with maggots, which were promptly destroyed, however, and bad odors very materially modified, by the free use of a strong decoction of the leaves of Australian blue gum.

CASE 4. June 11th, 18—, was called in consultation with Dr. Reynolds, of Upper Lake. Found that the three-year-old son of R. T. had just received an accidental wound from a pistol, the ball penetrating the skull through the right parietal bone, near the coronal suture, making its exit about three inches beyond, its course being from before backwards, parallel with and just above the temporal ridge. We could feel the cranial wall broken down between the two wounds, which gave hope that the missile had not penetrated beyond the meninges of the brain, although the child was comatose, with stertorous breathing, eyes rolled back in their sockets, besides other alarming symptoms. For the time we deter-

mined to adopt an expectant course; the child was placed comfortably in bed, and cold water dressings applied to the wound, the room darkened, and the utmost quiet enjoined. The next morning the more prominent symptoms had subsided; the child being conscious, complained of little pain; the side opposite the wound was paralyzed; the child began to take nourishment. Beyond the difficulty of providing against constipation, and to keep the bladder free, the case progressed favorably for perhaps a week, when the two wounds and the interspace assumed an undue prominence and bulging appearance. The effort to repress this by applying pressure only had the effect to stupify the child, and to accelerate sloughing of the integument, thus converting the two into one wound; when all loose fragments of bone were removed, and a well developed cerebral hernia, the bigness of a hen's egg, was exposed. We were in a quandary what to do with the fungus, in which emergency our old friend Dr. Jesse T. Boone, of Kelseyville, was called in, who, with a bolder and more experienced hand, excised the mass down to the cranial wall. It proved to be non-vascular, and its removal had none other than the happiest results. There was a tendency to its reproduction, which was controlled by a properly adjusted perforated leaden plate, with compress beneath resting on the wound, saturated with carbolized vaseline. Beyond this the case progressed favorably; from time to time small spiculæ of bone were removed; there never was much suppuration; we never indulged in much probing, never fully determined the depth to which the ball penetrated. At the end of about three months the wound was entirely roofed over by a thick cicatrix, and the child was the same strong, bright, promising boy as before the shooting. Pulsation following each heart-beat is plainly perceptible. Once since, while running, he struck the site of the old wound on a sharp corner of a table, when he was knocked down, stunned; he regained consciousness in a short time, but the opposite side was partially paralyzed several days; with this exception, mentally and physically, his condition has remained all that could be desired.

In the surgical history of the war between the States, of fifty-one cases of *hernia cerebri* reported, forty-four died within a few months; of the seven survivors, four fully recovered—with all their faculties unimpaired—whilst the remaining three suffered from headache and other distress at times, so as to unfit them for any considerable mental or physical effort.

In thus attempting to give an outline of surgical experiences in the "backwoods," if I deny its purpose to be a desire to show what I do know, you must not charge me with designedly suppressing what I do *not* know of the subject treated.

REPORT ON HYGIENE AND STATE MEDICINE.

BY H. GIBBONS, SR., M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: In no department of medicine has there been an advance as marked and as beneficial as in that of hygiene or preventive medicine. That a large percentage of deaths was from avoidable causes was well known by former generations. But it does not appear to have been fully realized until the last twenty or thirty years. How to cure disease was the leading thought. To this our fathers gave deserved attention. With them the "practice of medicine" was what the words imply. It was the therapeutic art. Their armamentarium was more extensive than ours, though it lacked many of the best remedies, for which we are indebted mainly to chemistry. They had a better knowledge of drugs than the present generation of doctors. They depended on experience and observation, not, however, without the aid of science, whose lamp they kept ever burning to throw all possible light on their pathway. This was rational empiricism - for there are two kinds of empiricism which ought never to be confounded, one, expansive and catholic, uniting experience with science, the other selfish and exclusive, coupled with artifice, ignorance, secresy, trickery and falsehood, typified by Paracelsus, who declared that his beard possessed more knowledge than all the medical schools of his day. To designate as empirical, those well educated practitioners who rely mainly on experience, and who refuse to adopt new theories and new modes of practice unless they are well confirmed by experience, is erroneous and unjust, besides being an abuse of language.

In the past centuries State medicine, what there was of it, was entirely in the hands of governments. It consisted almost entirely of such measures as might guard against the introduction of pestilence. It was entirely selfish, or instituted for self-protection. The medical profession appears to have had little or nothing to do with it. The doctors of two or three hundred years ago had enough on hand to take care of themselves. So late as the time of Howard, physicians stipulating to attend the sick in the prisons of England required a proviso exempting them from attendance in case of pestilence. Contrast this with the course pursued by American physicians of our time, when the cities of the South have been visited by cholera or yellow fever! The list of professional martyrs from the North who laid down their lives at Richmond and Memphis tells the story.

We must, however, give credit to the profession for one great hygienic movement which originated in the last century. I refer to vaccination. Inoculation had been introduced in Europe long before, by a woman. It was adopted by the profession when the proofs of its usefulness were shown. But though it protected on the one hand those who were inoculated, it kept the disease alive on the other hand, so that it was the means of disfiguring and killing indirectly as many as it protected directly. To vaccination there was no such objection; and though Jenner was for a long time resisted and ridiculed by his medical brethren, he lived to see his discovery firmly rooted, and his name written among those that "know not death."

From time immemorial, Boards of Health have existed in most large cities of the civilized world. In our own country these Boards were established by the authorities in self-defense. They appear to have had but little connection with the profession; most or all of their members were private citizens, and not medical men. The Health Physician was the only link between the government and the profession. The objects of the Board were to guard against the introduction of pestilence

from abroad, and to correct nuisances at home. As time passed on, these Boards gradually fell under the partial or complete control of physicians. As might be expected, their sphere of action was enlarged, and in some instances they were clothed with much power.

Quarantine laws are as old as the nations. They were cradled in selfishness and inhumanity, and were enforced with much cruelty. As knowledge and civilization increased, they were greatly softened down and improved. But the quarantine question is not yet settled. It presents several points on which the community, as well as those physicians who have most studied the subject, are at variance. Conflicting with trade and commerce, as quarantines always do, this is to be expected. But there are other questions in dispute of a purely scientific character, and which will not be settled until the nature and history of pestilential diseases shall have been better understood.

The interest of the profession in hygiene gradually extended until it ceased to be an individual concern. Medical societies awakened to its importance, and State Boards of Health were proposed. These required legislative action, and the wisdom and humanity of legislators were to be invoked. Massachusetts has the honor of establishing the first State Board of Health in the Union. From that time to the present scarcely a year has rolled around without the addition of one or more States to the list. California was among the first to fall into line, taking the fourth place on the roll. It may be well to mention here, that the establishment of the California State Board of Health was due mainly to the labors of a member of this Society, now deceased, who took a leading part in the reorganization of the Society, and who was the first President after the reorganization. It is scarcely necessary to say that I refer to the late Dr. Thomas M. Logan, of Sacramento, who occupied the post of Permanent Secretary from the organization until his death.

The several State Boards of Health act under laws somewhat similar, but differing in the degree of power allotted them. No compensation is allowed, except to the Permanent Secretary, who performs much service during the year. It is customary for the Legislatures to appropriate a sum sufficient to cover his salary and the actual expenses of members attending the meetings or performing other duties required of them. So lightly has the subject been appreciated in some quarters, that one or more States enacted the law and appointed the Board, but refused all compensation, thus leaving the Board, if they saw fit, to work for the public and pay their own expenses. Subsequent legislation, however, corrected the law in this respect.

It may be worthy of note that no State has ever gone backward after inaugurating a State Board of Health, and repealed its enactment. On the contrary, so manifest have been the good results, and so much in accord with public sentiment, that the Boards have grown in influence and in popular and legislative favor until they have come to be regarded as permanent departments of State government.

I have said that the degree of power given to the Boards is not uniform. In California, for instance, it is merely advisory. Our Board can merely watch over the public interests in matters of health, and give counsel when necessary. On the other hand, the Illinois Board has almost absolute, unlimited power to adopt measures of protection from disease. In the exercise of this power the Illinois Board enforced compulsory vaccination in such parts of the State as were threatened with disaster from the recent smallpox epidemic. It cannot be doubted that the rapid extinction of that plague in Illinois, at the moment when it threatened most, was due to the vigilance and authority of the Board.

The Illinois State Board has another duty to perform, viz: The inspection of the testimonials of every physician practicing in the State, and the granting of licenses to all who exhibit diplomas.

The number of members in the several State Boards varies from five to seven. In California there are seven. They are appointed by the Governor, with the sanction of the Senate, and hold office four years.

During the last year California has been constantly menaced by smallpox, which has frequently invaded its borders from various quarters. The local Board of Health of San Francisco has exercised a vigilant and successful control within its borders, so that the pestilence was prevented from becoming epidemic in the metropolis. Only the most energetic measures enforced by that Board protected the city from decimation by the loathsome scourge. It was fortunate for San Francisco and for the State, that so much power was vested in that body. As already stated, no power other than advisory was in possession of the State Board. Accordingly, this Board exerted itself in promoting vaccination, both by distributing circulars through the State, and providing genuine vaccine virus.

But a critical moment occurred when a number of cases of smallpox had been introduced in the northern section of the State in the immigrant trains of the Central Pacific Railroad. The public safety required some action to be taken. In consultation with Governor Perkins, and with his counsel and sanction, the State Board, through its Secretary, Dr. Hatch, proceeded to establish an inspection of all the immigrant trains on their entrance into the State, and to quarantine all infected cars. Such a course would naturally lead to greater care and vigilance among immigrants themselves, in the East, before entering the trains, as well as among all parties concerned in the travel. A single case of smallpox was found in the cars after the quarantine was established. The danger soon subsided, and the quarantine was withdrawn.

There was danger also on the southern border. But measures taken in Arizona and at Los Angeles and by the railroad company itself, warded off the pestilence. At present the subsidence of the disease at the East and the waning epidemic tendency among ourselves, render restrictions of travel by land unnecessary.

INCREASED MORTALITY OF THE PAST SEASON.

Early in the winter the people of San Francisco were alarmed by a great and almost sudden increase in the bills of mortality. Some attributed it to the north wind; others to filthy sewers. But a change in the wind brought no improvement, and the same unsanitary condition prevailed where the sewerage was good, and also where there was no sewerage, good or bad. Had the sewer-alarmists looked abroad, they would have observed a similar increased death-rate in town and country over the entire State, and indeed over the whole Pacific slope, including British Columbia. In fact, the entire temperate zone of the continent and of Europe experienced more or less the same condition.

In all this there is nothing unusual, except in the degree of mortality, which was far above the common mark in San Francisco and on the Pacific Coast in general. Every winter brings with it an extension and aggravation of disease, especially of the pulmonary organs. The contagious eruptive affections also prevail in the winter and spring.

Prominent among the causes of death, as reported, stood "pneumonia." In San Francisco especially, it was noticed that the fatality from pneumonia was largely among children, and that it supervened on measles. We all know that measles ordinarily is not a serious disease, either in itself or its sequels, under proper care and good hygiene. The same may be said of primary and idiopathic inflammation of the lungs. I have not the slightest doubt that a large number of the deaths from pneumonia in children might have been averted by proper hygienic care during convalescence from measles. The children of the poor suffered most, as they always do.

For the reasons stated, an estimate of the salubrity of any given locality, founded on the rate of mortality alone, can not be relied on. We must embrace, in our estimate, the amount of poverty, ignorance, and moral and physical debasement. Wherever these abound the angel of death will always find an

abundant harvest, be the climatic and local advantages what they may.

Though not strictly within the range of my subject, it may not be amiss to add that the pneumonia which has proved so fatal was of that form recognized as a constitutional disease, of which the lung affection is but a result or accompaniment. Nearly a century ago Dr. Rush employed the term "pneumonic fever" to distinguish such cases. We might define it in its recently fatal form as an ataxic fever with great constitutional disturbance, followed by or accompanied with pulmonic determinations.

Some anomalous features connected with eruptive diseases are worthy of record. The protection afforded, generally, by a former attack of measles, failed in many instances, second attacks being common. There was a remarkable tendency to eruptive affections from typical measles, and severe rotheln to the lightest grade of roseola. In numbers of cases measles was attended with extreme itching, such as occurs in scarlatina. Scarlatina, however, was rare. There were not many cases of diphtheria.

In taking a general view of the hygienic work that has been done in Europe and America in our period, we are forcibly struck with the immense amount of time and labor given to it by members of the profession, not only without compensation, but very largely at the cost of the laborers. Nothing has ever occurred in the history of medicine more creditable to its votaries. That no selfish or interested motives have prompted these efforts and sacrifices is plain; forasmuch as the object is to prevent disease, thus curtailing the business and income of practitioners. We have a right, without the imputation of censurable self-laudation, to claim from the outside world a recognition of these labors and sacrifices, as proof of the philanthropic character of the true disciples of the healing art. The amount of gratuitous service thus rendered to the State, or in other words to the people, could not have been secured outside the medical profession without an expendi-

ture of millions of money. Complaint is often made that the advance in the art of healing is not commensurate with the march of physiology and kindred science. But it is not possible that the spreading branches of the great tree of knowledge shall forever fail to bear fruit. Our orange groves are not the work of a day. The orchardist plants the seed and guards the slender plumule as it pierces the surface and develops its tender leaves, and day after day, and year after year, with full faith in the future, he tills, and waters, and protects, and watches, patiently awaiting the fruition of his toil, until he is rewarded by that most beautiful of all the hand in hand creations of nature and art- -the orange grove. So let us plant and cherish the seeds of knowledge, with full confidence that in due season the fruit will come, and although we shall not all live to reap the harvest, our posterity will enjoy the blessings, and honor us as benefactors of humanity.

VENTILATION AND SEWERAGE.

In the reports made to this Society in 1877 and in 1880, Dr. J. F. Montgomery, one of my associates, at present on the committee, described very fully a system of ventilation known as the Cottier system, which appears to have given unmixed satisfaction where it has had a fair trial. The principle consists in carrying the foul air upwards into conduits built in the walls of the house, and discharging it from chimneys above the roof. As Dr. Montgomery has not forwarded a distinct report, and as no person in the State, within my knowledge, has investigated the subject so thoroughly as he, I will take the liberty of copying parts of his communication to me, though not intended by him for publication, but only as suggestive to me in framing a report. In justice to the doctor it may be considered a

SUPPLEMENTARY REPORT FROM J. F. MONTGOMERY, M. D.

The grand object to be attained by the sanitarian is to secure to the people pure air, pure water, wholesome food,

unadulterated drinks, where there may be a need for their use, and properly prepare genuine medicines free from deterioration. To insure pure air there must be a thorough drainage, sewerage, and ventilation, and to carry out these, an accomplished civil and sanitary engineer is indispensable. To get these, such engineering should be thoroughly taught in our High Schools and State University. In connection with this matter, the most difficult problem of all is how to dispose of the vast amount of sewerage constantly being produced in our cities and towns. As a general theory, as we know, it is either stored in vaults and cesspools, or emptied into bays and rivers; in the latter case polluting waters often used for domestic purposes. All this is more or less wrong, and I have always held that means should be devised to convert all this noxious matter into harmless and valuable fertilizers. The pneumatic system of sewerage, as proposed first, as far as I know, by Lierneer, is quite suggestive on this point, although his process was too expensive to be practical. But the idea is a good one, and it should be acted and experimented upon until a system, with the same end in view, shall be so perfected as to be rendered practical and economical, and to secure general favor and application. This is a great question that has long been puzzling sanitarians and public authorities, and I am anxious to have you bestow upon it your earnest and mature thoughts, and to give us the result of your reflections in the forthcoming report.

What I have said in my reports on the subject of water supply, I hold to yet. It must be obtained from a pure source, not liable to become contaminated by polluting matter; and to insure this I have maintained that the cities of California should be supplied from the lakes on the mountain tops, there provided by nature for the population dwelling below, if they only have the sagacity and energy to appropriate the bountiful gift. San Francisco should lead in the enterprise, instead of wrangling with the Spring Valley Water Company and submitting to its onerous exactions. Then

Sacramento, Stockton, Marysville, Oakland, Vallejo, and other places could join in the work, instead of tolerating the impure waters they are compelled to consume. I notice, too, that the sewerage of your city is strongly condemned. This may be owing, in a measure, to having had a mere surveyor as an engineer, instead of such a sanitary engineer as I have spoken of. Then, again, the sewer gas in your city is blamed for the largely increased sickness and mortality with which you have been afflicted for many months past. This trouble might, to a considerable degree, in my opinion, be averted by proper ventilation, and to effect this I believe the plan I have advocated far better than any other. The system has been applied and is now in operation in various places in Sacramento over sewers, in outside and inside water-closets, and in school rooms, and its action is satisfactory.

Circumstances have led me to pay rather special attention to ventilation, and, when a member of the State Board of Health, I more than once sought to interest its members in this plan, which I really thought better than any other, for the reason that it was simple, inexpensive and automatic in its action, and depended upon, or was regulated by, for its efficiency, the natural laws that govern or regulate the movement of gaseous bodies.

When a member of the Sacramento Board of Education, in 1876, the Eastmond & Cottier plan of ventilating outside water-closets or privies was brought to my attention, when investigation satisfied me and the Board that the principle upon which it was based was correct. The result was that it was applied upon all the public school premises in the city, with much satisfaction. The Board gave Mr. Cottier a certificate to that effect, and it devolved upon me, by appointment, to write that certificate. This I did not do until I had well considered and investigated the plan and tested its efficiency. This certificate, with others, you will find in a pamphlet I will send to you along with a report from the Superintendent of Public Schools in Portland, Oregon. These I

send to you that you may learn from them the origin of the system, and the light in which it is regarded in Oregon, where it has been more fully and fairly tested and justly appreciated than it has been in this State. The papers in the *Proceedings of the Oregon State Medical Society*, by Drs. Carpenter and Browne, refer to the same illustration and test of the system, as does the report of Superintendent Crawford. Having corresponded with Dr. Carpenter, he commencing the correspondence, I very naturally sent to him copies of my reports, knowing that he took considerable interest in sanitary matters. It was in that way that my reports chanced to reach him, and through him, Dr. Browne, both of whom, to my surprise, I find have mentioned my name in their respective papers.

P. S. Since writing the foregoing, it has occurred to me that I should have said more about the history of the Eastmond and Cottier system of ventilation. It aspired first to the ventilation of water-closets only, chiefly outside ones, but since then Cottier has given his exclusive attention to it, and has successfully applied it to interior water-closets, hospitals, school rooms, residences, and churches, and now claims that he can successfully ventilate, upon the same principles of pneumatics, any place whatever requiring ventilation. Last year he invented a suction ventilator or ejector, which was patented to him in July, 1881. This is placed over the outlets of all air flues or ventilators, and is said to be an important adjunct to the system, as previously existing. And with this ejector alone he has succeeded in ventilating the sewers in several towns, certainly in Sacramento and in Napa.

REPORT OF COMMITTEE ON MEDICAL TOPOGRAPHY AND ENDEMICS.

Some of the Health Resorts of the Coast Range Mountains.

BY F. W. HATCH, A. M., M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: I have to offer an apology for the delay in presenting this report, and the limited area it embraces. Sickness, to which all are subject, the profession not less than the laity, must be my plea. The climate of California is not yet fully understood. However much may have been written about it by different observers, our life here has been too short, since any attention was paid to the subject, to determine with accuracy, or even satisfactorily to ourselves, its true relations to disease. We have been led to believe, from observation, that it exerts a beneficial influence, in certain sections, and under certain conditions, over some diseases, especially over consumption, at those stages where any benefit can be expected from climatic influences. But we have much to learn; further observations are needed, with a careful analysis of cases supposed to have been benefited, before we can determine, with a degree of accuracy essential to such a study, its precise value. Keeping those things in view, I venture to present a few considerations touching the sanitary relations of one of the most interesting portions of California—the Coast Range Mountains.

It has been customary to consider the health resorts of California according to their locations in one or another of the four principal divisions of the State—the Coast, the Coast

Range Mountains, the Central Valley, and the Sierra Nevada. The second and last of these should be again subdivided into their eastern and western slopes.

One of the most interesting of these divisions for the purposes of the present report is the Coast Range, or rather the "Coast Ranges," for it is not a simple, unbroken chain, but composed of different groups, separated one from another by valleys of greater or less size, these different groups bearing names assigned to them by early Spanish or Mexican settlers. Thus, we have the Monte Diablo, the San Bruno, the Santa Lucia, the Santa Anita Ranges, and others as numerous as the saints in the calendar.

A clear, well-defined distinction between the Coast Ranges and the Sierra Nevada only exists along a portion of the State—that is, between the thirty-fifth and the fortieth parallels—where they are separated by the broad valleys of the Sacramento and San Joaquin. North and south of these parallels the two mountain ranges merge into one another, rendering it impossible for the general observer to distinguish between them. To the scientific student the different geological characters of the two ranges would probably afford a safe guide. East of this range lies the great Central Valley, and yet further east, the lofty range of the Sierra Nevada. The divisions assumed, therefore, for sanitary purposes, correspond closely with the physical features of the State.

"In order to bring vividly before the mind the grand simplicity of the topographical features of California, we may draw on the map of the State five equi-distant parallel lines, having a direction of N., 31 W., and fifty-five miles apart. Let the middle one of these be drawn at the western base of the Sierra Nevada, touching the edge of the foothills, as it will be found to do with the given direction, from Visalia to Red Bluff; the first parallel line east of this, drawn at fifty-five miles distance, will pass through or very near the highest points of the Sierra, beginning with Mount Shasta on the north, and touching in succession towards the south, first

Lassen's Butte, then Spanish Peak, the Downieville Peaks, etc. * * * * We may call this the main axial line of California, while it will be interesting to notice to how considerable an extent the great topographical features of the State will be found to be subordinate to it. The next parallel line east of this, still at the same distance of fifty-five miles, crosses a series of depressions mostly occupied by lakes, which we may consider as representing the eastern base of the Sierra. * * * At its southern extremity it makes the confluence of the Colorado and Gila Rivers.

"The first line to the west of the central one, or that drawn at the western base of the Sierra, will be found to follow very closely the eastern slope of the Coast Ranges from the neighborhood of Kern Lake to that of Clear Lake, a distance of over three hundred miles. The second line west of the central one, and the last of the series of equi-distant parallel ones, represents, as nearly as possible, the coast line of the Pacific; or, in other words, the western base of the Coast Ranges. By this curious arrangement, which must be due to the agency of great cosmical forces, and which is evidently not the result of chance, we have the State, atleast that portion of it between Fort Tejon and Red Bluff, divided into four belts of nearly equal width (a portion of the most easterly one, however, falling within the limits of the State of Nevada), which are designated as follows, naming them in order from east to west: The Eastern Slope, the Sierra, the Great California Valley, and the Coast Ranges."—*Geological Survey of California, Vol. I.*

With this preliminary explanation of the topography of the coast region, and its relations to the other divisions of the State, we may be able to arrive at a better understanding of the subject under review.

The climate of the Coast Ranges is unlike that of any other of the climatic divisions above designated, and materially differs on its western and eastern slopes. The former, more exposed to the winds which sweep across the valleys, and condensing their moisture, has an atmosphere more humid as com-

pared with the latter, and is more exposed to fogs, while its mean temperature is lower.

Such may be considered the general characteristics of the western slope, though subject to modifications in different localities and exposures.

As compared with the loftier range of the Sierra Nevada, the climate of the coast mountains is milder, the extremes of temperature are less, the altitude is more agreeable to many invalids, and the atmosphere somewhat more humid. Snow occasionally falls upon the summit of the hills, but soon disappears, and the winters are seldom too cold for the comfort of a large number who resort thither under the designation of invalids. There are, in fact, a number of climates to be found there, dependent upon local causes—upon topography, exposure, altitude; and there is another peculiar feature, well marked along some portions of this range, perhaps throughout its whole extent—the existence of which is known as the "thermal belt," varying in elevation from five hundred to twelve hundred feet, or more, and greatly increasing its adaptability as a residence for the invalid. It has been observed in many parts of this mountain range, as in Napa, Lake, Solano, Santa Cruz, and San Luis Opispo Counties. Vegetation flourishes here even during the winter; green peas and tomatoes are picked from the vines in January, and green corn in November.

I am indebted to an article published by Dr. James Blake, some years since, for valuable observations regarding the anomalous distribution of heat in California anomalies well marked in both of the great mountain chains of the State. In order to investigate the subject, three stations were chosen, one on the Sierra, one in the Tehachipa Mountains, and one in the Coast Ranges.

"The Sierra stations were Sacramento, 30 feet; Colfax, at an elevation of 2,421 feet, and Emigrant Gap, 5,270 feet above the sea. The stations in the Tehachipa range were Sumner, 415 feet; Kern, 2,700 feet; and Tehachipa, 3,964 feet; in the Coast Ranges, Calistoga, 400 feet, and Dr. Blake's resi-

dence, 2,100 feet above the sea. The months selected for comparison were August, 1878, for the maximum temperatures, and December, 1878, for the minimum temperatures. * * * If now we consider the temperature curves for December, we shall find that in the Sierra the minimum temperature of the middle station (Colfax, 2,421 feet), was higher than that of the lower station on twenty-seven days; and at the upper station (Emigrant Gap, 5,270 feet), higher on eighteen days than that of Sacramento on the same days; the difference in temperature between Emigrant Gap and Sacramento amounting some days to nineteen degrees, and being frequently at the upper station from ten to fifteen degrees higher. On nine days in the month the minimum at Emigrant Gap was higher than at Colfax, the difference on one occasion being eleven degrees in favor of the higher station. Analogous relations of temperature are found at some other localities. In the Tehachipa Mountains the minimum temperature of Kern (2,700 feet), was higher than that of Sumner on twenty-four days, and the highest station (Tehachipa, 3,964 feet), had a higher minimum temperature than Sumner on eleven days. In the St. Helena Range the minimum temperature at my residence was above that of Calistoga on twenty-four days, the difference on one occasion being twenty-four degrees in favor of the higher station.

"When we consider a little more closely the above figures, we shall be able to judge what an extraordinary distribution of temperature they indicate. According to its altitude, Emigrant Gap should have a temperature seventeen degrees lower than Sacramento, and yet on one occasion we find it nineteen degrees warmer, giving it an anomaly of thirty-five degrees above its calculated temperature. My residence is 1,700 feet higher than Calistoga, and would therefore have a temperature of six degrees lower, an anomalous distribution of temperature of thirty degrees between two places but a short distance apart, and with only 1,700 feet difference in altitude. * * * * I think * * the only explanation that can be

offered of this anomalous distribution of temperature is, that during a calm state of the atmosphere the lower stratum of air that has been heated in the valleys during the day, gradually rises up en masse, its place being supplied by the cold air flowing down into the valleys, near the surface of the ground that has been cooled by radiation during the long winter nights. * * * The facts stated are most important in their relation to the cultivation of semi-tropical fruits. The only time at which they are liable to be injured, although up to an elevation of 3,000 feet, is during calm and cold nights, and on such nights, as has been plainly shown, it is the more elevated places that are the warmer. During our stormy weather, even in mid-winter, the temperature never falls low enough at the elevations above given to injure them. At my residence (on Mt. St. Helena, 2,100 feet), most of the orange trees that were planted out only last season are uninjured. They certainly have suffered less than at Los Angeles, where a temperature of twenty-three degrees has been reported, while at my residence the thermometer has not been lower than twenty-nine degrees."

Thus much from the paper of Dr. Blake will not be without interest in explanation of the high temperature of portions of our mountain regions during the winter.

But it is during the summer season that the Coast Ranges seem to be especially adapted as a resort for the consumptive, the asthmatic, and others to whom the moist air of the coast, its winds and fogs, and the heated atmosphere of the interior valleys, are objectionable.

At this season, in the central portion of the State, LAKE COUNTY presents many of the most favorable conditions for such invalids. Radiating in different directions from Lakeport, many localities may be found possessing most or all of the climatic features which experience has shown to be promotive of health in chronic disease; a pure, dry air, moderate elevation, equability of temperature, and to these may be added the salutary influences of beautiful scenery, pleasant exercise, and pure water.

The opportunities for camp-life afforded by this section are unexcelled by any portion of the State, the dry air rendering even the protection of a tent unnecessary, except for the convenience of females and for those greatly reduced in strength. Such a life is, in the highest degree, accessory to the climatic advantages of the mountains. In fact, in no other way than by a life in the open air, wandering among the hills in search of game, or sporting with the speckled beauties of the brooks, and sleeping under the broad canopy of heaven, breathing the aroma of the pines, can the full benefits of a season spent in this locality be obtained. Those unable to endure the physical labor incident to fishing and hunting, may find profitable amusement and healthful exercise in the many other ways which camp-life, with pleasant companions, readily suggests. There is an exhilaration about such a life to which even the sick are keenly sensitive, and which only those who have experienced it can fully appreciate. Indeed, camp-life is almost the essential condition upon which dependence is to be placed for substantial benefit; because it ensures exposure to the open air, and to a greater or less extent, compels exercise. The little duties of the camp, too, afford occupation for the mind and divert the thoughts from self and suffering.

By the combined influences of these two—out-door exercise and a pure, dry, bracing atmosphere—the lungs expand, the circulation quickens, and the processes of nutrition are more vigorously performed. These associated influences are too frequently lost sight of by those visiting the mountains for the restoration of health. They ought to be insisted upon as being absolutely indispensable and inseparable.

For those who are unable to avail themselves of all the advantages which the mode of life suggested may secure, the town of LAKEPORT itself may be profitably resorted to. Situated on the shores of Clear Lake, from which it ascends by gentle gradations to about 1,400 feet, it affords excellent accommodations for the invalid, beautiful scenery, and a pure, dry, invigorating atmosphere. The lake itself is a

beautiful sheet of water, where the weakest invalid may enjoy the light exercise and exciting amusement of fishing, while in its vicinity are many objects of interest, attractive not less to the sound in body than to the sick.

Among these, may be mentioned the BORAX LAKE, on the east side of the lower or narrow arm of Clear Lake, of variable dimensions, and affording interesting evidences of volcanic action. It contains, along with the chloride, carbonate and borates of soda, 281.48 grains of anhydrous biborate, equal to 535.08 grains of crystallized borax to the gallon. There are also traces of iodides and bromides.

About a mile distant lie the "Sulphur Banks," consisting of decomposed volcanic rock through the innumerable fissures of which gas and steam are constantly issuing, and large quantities of sulphur have been deposited, by which the rocks have been so thickly covered as to give them the appearance of being a mass of SULPHUR.

Near the "Banks," again, is a hot spring of which the outlet is beneath the Lake, estimated to yield 300 gallons per minute. The water of this spring, as analyzed by Mr. Moore (*State Geological Report*), is found to be of a remarkable character; his analysis is subjoined:

	Grains in One Gallon.
"Chloride of potassium	trace.
"Chloride of sodium	84.62
"Iodide of magnesium	.09
"Bromide of magnesium	trace.
"Bicarbonate of sodium	76.96
"Bicarbonate of ammonium	107.76
"Biborate of soda	103.29
"Sulphate of lime	trace.
"Alumina	1.26
"Carbonic acid (free)	36.37
"Silicic acid	8.23
"Matters volatile at a red heat	65.77
"Total	484.35

"In this table the constituents are necessarily calculated as anhydrous salts; the biborate of soda, however, contains about forty-seven per cent of water when crystallized, and the 103.29 grains given above correspond to 195.35 of crystallized borax. The most extraordinary feature in the above analysis is the very large amount of ammoniacal salts shown to be present in this water, in this respect excluding every mineral spring-water which has ever been analysed."

An examination of these and other less prominent natural curiosities in and about Clear Lake will afford interesting and profitable occupation for the mind of the visitor, and serve to relieve the monotony of life in the mountains.

The evidence in favor of the vicinity of Lakeport as a summer residence of the consumptive, in the early stage of disease, and of the mode of life above recommended, is indisputable. It is testified to by the physicians residing there, whose opportunities for observation have been frequent; it is shown in the persons of permanent residents of the county who went there for the benefit of their health; and it is abundantly demonstrated by the experience of physicians who have been in the habit of sending patients there with pulmonary diseases.

But it is not alone for the consumptive that this climate is advised. In general debility, without organic disease, in the malarial cachexia, in defects of digestion and assimilation, in functional disorders of the nervous system, and in asthma, visitors from the valleys find effectual relief.

Doubtless, it is not alone to the *air* of the mountains to which we must look for benefit for the invalids, although it may be supposed to play an important part, but to the *change*, the new mode of life, the new scenery, and the effect upon the mind, the agreeable associations, the freedom from social ceremonies, the exercise which the situation enforces, and the outdoor exposure, in association with the atmospheric conditions peculiar to elevated districts.

Many of the best mineral springs are located in Lake County—the Bartlett, the Siegler, the Howard, the Adams, the Allen, and the HIGHLAND. The latter is exceptional, in being owned and managed by an intelligent physician, under whose directions the visitor may be safely guided as to the *kind* of water suited to his condition, and the proper method of using it; or whether, in fact, it should be used at all. These are important matters, much neglected, and likely, in consequence of inattention thereto, to bring our most valuable springs into disrepute. If others of our mineral springs were thus provided, they would be rescued from the empirical system which now generally prevails; their real merits would be developed, and the evils which follow their promiscuous and hap-hazard use avoided.

An analysis of one of the springs at this place, made by Professor Rising, of the State University, yields the following result. Temperature eighty-five degrees:

	Grains per United States Gallon.
Chloride of sodium	1.290
Bicarbonate of potash	.544
Bicarbonate of soda	21.763
Bicarbonate of lime	50.411
Bicarbonate of magnesia	70.243
Bicarbonate of iron	.973
Bicarbonate of manganese	trace.
Silica	7.398
Alumina	.169
Organic matters	trace.
Free carbonic acid	74.462
Total	237.262

These springs are pleasantly situated among the pines, at an elevation said to be about 1,700 feet, and are advised for the various purposes for which waters of the class are considered adapted. There seems to be evidence that they have proved of decided benefit in Bright's disease.

It is not the purpose of this paper to consider the mineral springs of this region. Many of them are valuable for certain purposes, affording, in addition to their medicinal virtues, all the advantages of a pure mountain air, and excellent facilities for out-door life, and physical exercise with rod and gun. Highland Springs have been specially spoken of on account of the new departure which has been made in their being placed under competent medical control.

COBB VALLEY.

It has been the custom of many invalids to retire during the summer season to Cobb Valley, in the Coast Range, between Lakeport and Calistoga—perhaps twenty-five miles from the latter. It is a pleasant retreat for the residents of the lower, central valleys of the State, weary with the cares of business, or debilitated by obstinate malarial diseases, though the nights are usually cold, necessitating some care on the part of the invalid against the rapid change in temperature between noon and evening. The atmosphere is dry, as compared with the less elevated valleys of the State, yet humid in contrast with the mountains by which it is surrounded. It lies at the base of Cobb Mountain, is easy of access by stage from Calistoga, the present terminus of the Napa Valley Railroad, and affords good advantages both for camping and in-door life. Bassett's, in the valley, and Oliver's, not far distant, will be found pleasant, hospitable homes for those unwilling or unable to avail themselves of the benefit of camp-life, while for others, camping on the hill-sides, many conveniences may be obtained at these places, such as fresh milk, bread, butter, and the like, the luxury of which those accustomed to camp-life know so well how to appreciate. A fine brook runs through the valley abounding in trout, while game of every description may be found on the hills.

By an annual resort to this valley and the neighboring hills, and the pursuit of pleasure, recreation and exercise in

the many ways which the location suggests, the writer has known many invalids, some in the early stage of phthisis, some prostrate from obstinate malarial attacks, some debilitated and broken down by long and uninterrupted attention to business, to be materially benefited.

BLUE LAKES.

Twelve miles from Lakeport, nestled among the pines, are the Blue Lakes, a favorite resort for the invalid and for the sportsman. The climate is not unlike that of Lakeport, though the elevation is considerably greater. Excellent accommodations are to be found at the hotel, and eligible spots for camping near by, while the waters of the lake are said to abound in fish and the surrounding country in game.

Attracted by its fine climate and the many facilities for exercise and amusement, numbers of invalids spend the summer here, and find renewed strength and energy from its pure, invigorating atmosphere, its clear, cold water, and the relief from care which they are capable of enjoying.

Leaving Lakeport, which may be regarded as the representative of many equally favorable localities in this portion of the Coast Range Mountains, we reach, going south,

BLAKE'S SANITARIUM,

On Mount St. Helena. This resort is owned and conducted by Dr. James Blake, long known in California as a physician and scientist, and one of our best authorities on the subject of the climate of California, who selected it on account of its special adaptation to chronic pulmonary disease. It is of easy access from Calistoga, the present terminus of the Napa Valley Railroad; has an elevation of two thousand one hundred feet; and in addition to the ordinary advantages which pertain to a mountain home, is favored by an almost absolute exemption from fogs. From the meteorological table furnished by Dr. Blake, for 1878, we obtain the following interesting facts: The mean temperature for January was forty-three degrees;

February, forty-five degrees; March, forty-eight degrees; April, fifty-four and five one-hundredths degrees; May, sixty-three degrees; June, sixty-eight degrees; July, seventy degrees; August, seventy-two degrees; September, sixty-six degrees; October, sixty-one degrees; November, fifty-two degrees; December, fifty degrees. The lowest temperature was in January, twenty-nine degrees; the next, in March and April, thirty-two degrees. Between January and July the range of the mean monthly temperatures was twenty-seven degrees, and between January and August, twenty-nine degrees. The highest temperature in January was fifty-nine degrees, and in July ninety-two degrees—a range of thirty-two degrees. The mean relative humidity, in January, was seventy-four per cent; February, seventy-eight; March, seventy-two; April, fifty-eight; May, fifty-eight; June, fifty; July, forty-three; August, forty-four; September, thirty-four; October, thirty-seven; November, sixty; and December, sixty-eight. The mean of the warm months was forty-four per cent; of the cold months, seventy.

The atmosphere at Blake's is, therefore, a little more humid than that at Atlas Peak, next to be considered, the latter yielding during the warm months only thirty-nine per cent, and during the winter, fifty-one. The climate is equable: generally not too cold for a winter residence, nor oppressively warm even at mid-day in summer; the atmosphere is invigorating and dry enough to admit of the night being spent, in summer, among the clusters of pines which form an important feature of the locality, and favor the adoption of a means of cure which has a prominent place in the treatment advised. The consumptive, in the early stage of disease, who can afford the moderate expense attending a sojourn at this sanitarium, can select no place more favorable to recovery than this.

ATLAS PEAK.

This locality, selected by the Committee of the State Board of Health, as being well adapted, as well by its climatic features as by its accessibility, for the location of a State Hospi-

tal for Consumptives, is situated in the Coast Range Mountains, on the east side of Napa Valley, twelve miles from Napa City. It possesses a climate admirably adapted for certain invalids. Its elevation is about fifteen hundred feet; its mean winter temperature is fifty degrees, and the mean of summer, seventy-four degrees, while the daily thermometic range of all seasons is equable and salutary. In this respect it is less equable than San Diego, Santa Barbara, and some other localities on the coast, but, on account of the dryness of the atmosphere, the descent of the mercury is less seriously felt than would be a much slighter variation in the more humid region of the latter. In 1876, the only year of which we have a meteorological record, the mean daily range of the thermometer was, in March, nine and seven one-hundredths degrees; in April, eleven and twelve one-hundredths degrees; in May, twelve and forty-eight one-hundredths degrees; in June, seven and sixty-three one-hundredths degrees; in July, ten and forty-two one-hundredths degrees; in August, ten and forty-two one-hundredths degrees; in September, ten and sixty-seven one-hundredths degrees; in October, eight and twenty-seven one-hundredths degrees; in November, ten and forty one-hundredths degrees; and in December, fourteen and sixty-seven one-hundredths degrees. For the winter months, the mean temperature at two P. M. was, in January, thirty-eight and five one-hundredths degrees; in February, forty-three degrees; in March, forty-eight degrees; and in December, thirty-seven degrees—at no time too low to permit open air exercise; neither, except for the winter rains, is it unsuitable for camp life. Mr. Evans informed the writer that he was able, on Thanksgiving Day, in November, 1879, to supply his friends in Napa with young green corn.

The minimum temperatures of the year under review (1876), were, in March, thirty-two degrees, and the next lowest in December, thirty-eight degrees. In June, the temperature rose to ninety-four degrees; in July, to ninety degrees. These high temperatures are, however, but for a few days.

The mean relative humidity was, in January, forty-eight per cent; in February, sixty-three; in March, sixty-four and six one-hundredths; in April, forty-seven; in June, thirty-four and three one-hundredths; in July, forty and seven one-hundredths; in August, thirty-two and three one-hundredths; in September, thirty-three and three one-hundredths; in October, fifty-seven; and in December, thirty-six and three one-hundredths.

Out of the ten months included in the report for 1876, from March to December, inclusive—three hundred and six days—two hundred and sixty-nine days were set down as "clear," and, leaving out fractions, thirteen days "cloudy," thirteen "hazy," and ten "rainy." There was one "foggy" day.

The place is abundantly supplied with clear, cool water, obtained from a mountain spring.

There is no hotel at Atlas Peak, though invalids are occasionally accommodated by Mr. N. P. Evans, its owner.

As possessing a climate suitable for many consumptives, it has attained a well merited reputation, and if opened to the public and improved to suit the comfort of the invalid, it would, doubtless, become a favorite resort. At present there is little except its very excellent climate to attract the seeker after health.

There are other desirable localities on either side of Napa Valley. They possess, in general, the climatic features of those already described.

GLENWOOD MAGNETIC SPRINGS.

The location of these springs is in the Santa Cruz Range, about four miles from Glenwood Station, on the San Francisco and Santa Cruz Narrow Guage Railroad, and eight miles from the town of Santa Cruz. It occupies a basin in the mountains, at an elevation of about 1,000 feet, surrounded by redwood forests. In a ravine near the hotel and cottages is the magnetic spring, so named from its supposed magnetic properties. The water is clear, cool and nearly tasteless, is

slightly aperient in considerable doses, and is said to impart magnetic properties to steel, and to readily convey the magnetic current. Tests made by the writer with highly polished steel needles failed to afford any evidence of the existence of this supposed specific virtue.

The place is a favorite summer resort for families, to whom good accommodations are offered, either at the cottages or in tents. It is a pleasant, quiet resort for the invalid suffering from chronic malarial disease, in conditions of debility and nervous exhaustion from previous acute diseases, or from overwork; and would seem to be well adapted to the consumptive in the early period of disease. Its surroundings appear to protect it from the coast winds, and though subject to occasional fogs, it is much less so than most localities in the Coast Ranges near the ocean. It is said not to be unpleasantly or injuriously cold in winter, nor do destructive frosts occur during the spring or early summer months. Green corn, planted in December, three or four years ago, grew during the winter. The summer temperature, though often high at noon, is, as a whole, pleasant. A light breeze springs up in the early P. M., and the nights are agreeably cool. In July, 1880, at the time of the visit of Dr. Gibbons and myself, the mercury at 10:45 A. M. registered at seventy-four degrees, and at 12 M. seventy-nine degrees. This was in the shade on the north side of the house in a fair exposure. In an easterly exposure, where the thermometer is usually kept exposed to reflected heat, the temperature, at the same hour, was eighty-three degrees. The records kept here are, for the day observations, therefore valueless. Making due allowance for errors, it is probable that the mean temperature of summer, at 2 P. M., is from seventy-five to eighty degrees.

No observations have been taken to determine the humidity. The soil is dry, but the surrounding forests maintain an agreeable amount of absolute humidity with which there is associated the balsamic aroma of the coniferi.

The location of this place is attractive, surrounded by hills which, while they protect it from the coast winds, condense, on their summits, the fogs. A little energy, a little display of art on the part of the owner, would make it a most acceptable place of resort for many invalids.

Passing southerly along the Coast Ranges, with a simple allusion to what are believed to be most excellent localities for the invalid, in the neighborhood of San Luis Obispo, but of which no definite information has as yet been obtained, we reach the

OJAI VALLEY,

About thirty miles from Santa Barbara, and twelve or fifteen miles from San Buenaventura.

Were it within the scope of this paper much might be said of the natural beauty of this locality, its picturesque scenery, its quiet, homelike comforts. It is highly extolled by the physicians of Santa Barbara for its climatic adaptation to the consumptives at certain seasons, supplementing the latter when, on account of the prevalence of fogs or high winds, the conditions become unfavorable. The climate is dry, equable, and invigorating, and though the temperature in summer is warm, as at almost all points removed from the immediate influence of the coast --occasionally reaching above ninety degrees—the atmosphere is never oppressive or debilitating. The spring and autumn months are described as being delightful, free from fogs and high winds, and unsurpassed by any similar locality for equability, dryness, and other features considered favorable to the consumptive. The elevation of the upper valley is said to be about 1,200 feet, that of the lower about 1,000 feet. Excellent advantages are afforded for camp-life, and abundant opportunities for exercise in hunting and trout fishing. Good clear water is obtained in abundance by artesian wells.

Southeasterly, near Los Angeles, we reach the now popular sanitary resort known as the

SIERRA MADRE VILLA,

At an elevation of about 800 feet, in the San Gabriel Range. It is reached by a pleasant drive of twelve miles through the San Gabriel Valley, and possesses the very highest qualities as a health resort. The elevation is sufficiently high for the majority of invalids; the atmosphere is pure and dry, it is usually free from fogs, the temperature is equable, it is not visited by severe winds; the accommodations are excellent; the surroundings are neat, clean and pleasant, while the view from the Villa, embracing the beautiful valley of San Gabriel with its orange groves and vineyards, is one upon which the eye may continually rest without being tired.

The temperature tables prepared by Mr. J. C. Davis, show a mean temperature, for six years, in January, of fifty-six and five one-hundredths degrees; February, fifty-eight and one one-hundredth; March, fifty-nine; April, sixty-three; May, sixty-nine and nine one-hundredths; June, seventy-one and nine one-hundredths; July, seventy-six; August, seventy-seven and seven one-hundredths; September, seventy-six and seven one-hundredths; October, seventy-three and six one-hundredths; November, sixty-five and three one-hundredths; and December, sixty degrees.

The minimum temperature for January, 1875—the last of the series of years—was thirty-eight degrees, and the maximum seventy-two degrees; for February, minimum forty-six, maximum seventy-six; March, minimum thirty-eight, maximum eighty; April, minimum thirty-four, maximum eighty-eight; May, forty-nine and ninety-five; June, fifty and ninety-five; July, fifty-three and ninety-two; August, fifty-eight and one hundred and three; September, fifty-six and ninety-two; October, fifty-six and ninety-eight; November, forty-nine and eighty; and December, forty-two and eighty. The maximum is somewhat too high, on account of a faulty exposure of the thermometer. The daily duration of high temperature, however, is of but short duration, and the atmosphere is not oppressive. At mid-day, or soon after, a gentle ocean breeze

is experienced, rendering the temperature delightfully refreshing. The place is justly held in high esteem by the residents of the southern portion of California, and is sought by many from other portions of the State, and from States east of the Rocky Mountains.

The sketch thus given of some of the more prominent of the health resorts of the Coast Ranges has necessarily been brief and incomplete. The effort has been to include only those localities of which personal observation has enabled the writer to speak with some degree of confidence. What has been said may, perhaps, serve to correct erroneous impressions which it is known prevail in certain quarters concerning some of the localities spoken of.

REPORT OF COMMITTEE ON NECROLOGY.

By C. G. KENYON, M. D., Chairman.

Mr. President and Members of the Medical Society of the State of California: As Chairman of your Committee on Necrology, I beg to offer the following report:

IN MEMORIAM.

Gentlemen: It becomes the melancholy duty of your Chairman on Necrology to report the death of five members of this Society—all of them active members, and holding high reputation in our profession: C. S. Coleman, of San Leandro, Wm. Bamford, of East Oakland, and E. A. Sherman—all members of the Alameda County Society; Wm. Sharp, of Jackson, Amador County, and E. A. Matson, of Sonora, Tuolumne County.

DR. CHARLES SPOFFORD COLEMAN

Died at his residence, in San Leandro, Alameda County, November 27th, 1881, after an illness of four days, in the fifty-sixth year of his life. He was born August 17th, 1826, in Seneca County, New York. He graduated from the Geneva Medical College, New York, in 1847. His studies were conducted under the tutelage of Dr. Tompkins, with whom he became a partner in practice.

In 1850 he left New York and came to California, making the journey around Cape Horn. He alternately engaged in mining and the practice of his profession until 1856, when he accepted the position of surgeon in Walker's expedition, and went to Nicaragua, which position he held for three years.

In 1859 he engaged as surgeon on board one of the steamers of the Pacific Mail Company. He gave up this position and settled at Walnut Creek, Contra Costa County, where he practiced for some years.

In 1863 he located at San Leandro, purchasing the practice of Dr. Haile, and where he practiced his profession with success to the close of his life.

In June, 1878, he married Miss Anna La Grange, an estimable lady, by whom he had two children—two sons, two years old—to mourn his loss.

He became a member of the Alameda County Medical Association in 1871, and of the Medical Society of the State of California in 1872, and was a worthy and respected associate in every professional relation.

Dr. Coleman had the confidence of the people of the section where he lived, and held a large and lucrative practice. His just and upright dealings made many friends, who extend their sympathies to the bereaved family.

DR. WM. BAMFORD

Was born in Ireland, of Scotch and English parents, in the year 1820; emigrated with his parents to Canada in the year 1824; removed to New York in the year 1835.

He studied medicine and took his degree in the Indiana Medical College, in the year 1848; practiced in La Porte, of same State, until 1852, when he came to California. He practiced his profession in various localities in the early history of our State—Mud Springs, Healdsburg, Ione—and in 1865 he settled in Oakland, where he was engaged in active business up to the immediate time of death.

He died in harness, visiting patients up to the hour of death. He suffered from a complicated form of cardiac disease and chronic pneumonia. Death was sudden, and in his office.

Dr. Bamford was a member of Alameda County Medical Association, having joined in 1870, and of this Society since 1872. He was a quiet, unassuming gentleman, possessing those sterling qualities of mind and heart that endeared him to the large circle of friends and patrons who now mourn his loss. He leaves a wife and one child.

Dr. Bamford occupied an enviable position for professional integrity and ability in our profession.

DR. GEORGE EDWIN SHERMAN

Was a Californian; though not native and to the manor born, was from early childhood fostered, nourished, and educated within its bounds. He did credit to his bringing up, and would have left a record creditable to any commonwealth, and a source of pride to the profession of this State, had not his resources for work been curtailed by disease and an untimely death. He was born in Galena, Illinois, May 27th, 1842, removed with his parents to California in the year 1852, and lived in Colusa County; was educated in Oakland, graduating from the State University in June, 1865. He graduated in medicine at the University of New York, in 1867.

By competitive examination he was awarded an appointment in the hospital on Blackwell's Island, where he remained for eighteen months. He then repaired to Europe, and continued his studies in France and Germany, perfecting himself in the languages of those countries, as well as familiarizing himself with the modes of practice in the various hospitals.

He returned to his home and began the practice of his profession in Oakland, in the year 1870; was elected a member of the Alameda County Medical Association and of the Medical Society of the State of California in the same year.

He was married the following year. In the year of 1879 his health failed him, and he temporarily engaged in stock farming, in Eastern Oregon, and so continued until his death from heart disease, on September 19th, 1881.

Dr. Sherman left a wife and four children, who, with a host of relatives and friends, mourn his early death. He was a man of great literary attainments and tastes, as is shown by his general and professional libraries, which latter especially is very complete. In his professional life he enjoyed the full confidence of his brethren, and as a man was highly respected.

DR. WILLIAM SHARP

Was born in Canada, March 5th, 1826. He graduated from Philadelphia Medical College, 1857, and soon after came to this State. He located in Jackson, Amador County, where he practiced successfully and extensively throughout the county until a few weeks of his death, March 18th, 1881. His last illness was pneumonia. His widow and children still survive him, and continue to reside in Jackson. He was well and favorably known in the section where he elected to practice, and is mourned by a large circle of friends.

He was one of the early members of this Society, and the older members will remember him, and join in the sympathy extended his bereaved family.

DR. EDWIN AMES MATSON.

Of Sonora, Tuolumne County, died during the past year, as was mentioned by our President in his address this morning. Dr. Matson graduated in the Medical Department, University of Virginia, in the year 1871. He came to California and settled here, believing it to be advantageous to his health, he being threatened with phthisis. He came from Indiana to this State. He first settled in Stockton, afterward moving to Sonora, where he lived until death. He was a member of the San Joaquin Medical Society, and became a member of this Society in the year 1877, and was present at our last meeting. The doctor was favorably known as a faithful and efficient member of the profession, and his loss is deeply felt by this Society.

DR. IRA E. OATMAN, Treas., in Acc't with the Medical Society of the State of California. CR.

1881.			1881.		
Apr. 12.	To balance	$69 90	Apr. 20.	By cash paid Exam. Board, as per voucher No. 1	$100 00
Apr. 20.	To cash of Dr. Briggs—dues	50 00	Apr. 23.	By cash paid Dr. Briggs, as per voucher No. 2	184 30
Apr. 23.	To cash of Dr. Briggs—dues	540 00	May 4	By cash paid Dr. Briggs, as per voucher No. 3	20 00
May 4.	To cash of Dr. Briggs—dues	25 00	July 5	By cash paid Dr. Briggs, as per voucher No. 4	2 50
May 20.	To cash of Dr. Briggs—dues	105 00	July 9	By cash paid Bosqui & Co., as per voucher No. 5	15 00
July 5	To cash of Dr. Briggs—dues	40 00	Oct. 20.	By cash paid Beard & Co., as per voucher No. 6	509 90
Oct. 19.	To cash of Dr. Briggs—dues	50 00	Oct. 20.	By cash paid Dr. Briggs, as per voucher No. 7	15 90
1882.			1882.		
Apr. 18.	To cash of Dr. Briggs—dues	33 20	Apr. 5.	By cash paid Day & Joy, as per voucher No. 8	4 10
Apr. 13.	To cash of Dr. Briggs—dues	61 80	Apr. 13.	By cash paid Dr. Briggs, as per voucher No. 9	11 80
			Apr. 18.	By cash paid Board of Exam., as per voucher No. 10	100 00
	Total	$974 90			$963 50
			Apr. 18.	By balance	11 40
Apr. 18.	To balance	$11 40		Total	$974 90

APRIL 19, 1882. Examined and found correct.

C. N. ELLINWOOD,
JAMES SIMPSON,
H. GIBBONS,
} Committee.

ANNUAL REPORT OF R. H. PLUMMER, M. D., Treasurer of the Board of Examiners of the Medical Society of the State of California, for the year ending April 19, 1882.

DR.		CR.	
To cash received from previous Treasurer, W. Ayer..	$16 55	By cash paid to attorney, as per vouchers	$75 00
To cash received from 58 applicants, $5 each.....	290 00	By cash in litigating, etc., witness fees, etc., as per vouchers.....	58 50
To cash received from two duplicates, $1 each.....	2 00	By cash, stationery and incidentals, expenses of office.	37 85
To cash on deposit for application not complete.....	4 00	By cash to Secretary, for services, etc.....	250 00
To cash on account of presentation of fraudulent diploma	5 00	Total.....	$421 35
To cash from State Medical Society.....	100 00		
Total	$417 55	Balance indebtedness of the Board.....	$3 80

Examined and found correct.

C. N. ELLINWOOD,
JAMES SIMPSON, } Committee.
H. GIBBONS,

REPORT OF BOARD OF EXAMINERS.

BY R. H. PLUMMER, SECRETARY.

Number of meetings called during the year	17
Number of applications refused during the year upon the ground of insufficient credentials	3
Number of original certificates granted	58
Number of duplicate certificates granted where the original had been lost	2
Whole number of certificates granted during the year	60
Whole number of certificates granted by this Board since its first organization, in 1876	1,342
Of the licentiates during the year just closed, there were graduates of the two medical schools of California	11
Graduates of other American schools	39
Of foreign schools	10
Of these licentiates there settled in San Francisco	18
In other towns and counties of the State	42

There have been no revocations of certificates during the year just closed.

There has been but one arrest made under the anti-quackery law during the year.

At the time of the annual meeting last year there were a number of cases pending before the Superior Court, having been appealed from the decision of the lower Court.

Shortly after that time, while absent from the city, I read in a San Francisco paper that Judge Freelon had decided in the appeal case of B. F. Josselyn, that the medical law was void under the new organic law. In the language of the learned Judge himself: "Of course, it is special legislation, and is simply unconstitutional. Let the prisoner be discharged." It is believed, however, since the decision of the Supreme Court in the Sunday law case, that Judge Freelon

would be glad to set himself right on the record, were another case brought before him. But having the matter before the Supreme Court, we desire to have the decision of that body for the third time, and if possible settle the vexed question beyond further dispute. I learned that the case had been called, argued (on the part of the defense), and decided during the absence of the attorney employed by the Board, he not expecting the case to be called on that occasion, having previously spent several hours in the Court-room endeavoring to procure a hearing.

Under this decision several other cases pending in the same Court were dismissed. But the case of John Hastings, *alias* Jordan, had been assigned to Judge Ferral's Court. His attorneys applied to the Court to have the case dismissed, upon the strength of Judge Freelon's decision. But the Court refused to so act, and directed that the party appear for trial at a fixed date. Before that date his attorney went into Court and asked to have his appeal from the decision of the lower Court dismissed. Rather than to risk the overturning of Judge Freelon's decision, they preferred to pay the fifty dollars fine imposed by the lower Court. The case was dismissed, in accordance with their request. The Board then secured the arrest of another party, and had the case carried, on *habeas corpus*, to the Supreme Court. Messrs. E. R. Taylor, R. C. Harrison, E. I. Hutchinson, B. F. C. Sander, together with the Honorable District Attorney, were engaged in behalf of the people.

Several prominent legal gentlemen were retained by the defense. The case was called in due time and a day set for trial, before the Court in bank, at the request of attorneys on both sides. When that day arrived one of the attorneys for the defense being engaged in the debris case, then in progress in Sacramento, asked to have the case go over. The request was granted by the Court.

Since that time the attorneys for the Board have made frequent efforts to have a day set by the Court to hear the case,

but the efforts have so far been futile, owing to the great amount of accumulated business before the Court.

One of the attorneys informs me he is led to believe that the case will be taken up soon after the return of the Court from Los Angeles, which it was supposed will be about April thirtieth.

The Board has no further recommendation to make, than that made at our last annual meeting.

All of which is respectfully submitted on behalf of the Board.

CONSTITUTION AND BY-LAWS OF THE SOCIETY.

ARTICLE I.

TITLE OF THE SOCIETY.

SECTION 1. This institution shall be styled "THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA."

ARTICLE II.

MEMBERS.

SECTION 1. The members of this Society shall consist of delegates from permanently organized local medical societies, ordinary and honorary members, who shall collectively represent and have cognizance of the common interests of the medical profession in the State of California.

SEC. 2. Each delegate from a local society shall hold his appointment for one year, and until another is appointed to succeed him, and shall participate in all the business and affairs of the Society on paying the usual dues of five dollars.

SEC. 3. Each local Society shall have the privilege of sending to this Society one delegate for every five of its regular resident members, and one for every additional fraction of more than one half that number of its members.

SEC. 4. Qualifications for membership shall consist of a good primary and medical education, attested by a diploma from some known medical school of good repute, and a good professional and moral standing in the community in which such candidate may reside. A license from the Board of Examiners of this Society shall also be required of every candidate.

Ordinary Members—Every physician who shall properly satisfy the Board of Censors by the exhibition of his diploma that he possesses the necessary qualification as prescribed, may become an ordinary member of this Society, and all those who may thereafter serve in the capacity of delegates to the Society, together with such other persons as may receive the appointment by unanimous vote, shall thereby become permanent members; *provided*, that no physicians shall be considered eligible to membership who may reside within any location where there is a local medical society and who has failed to become a member thereof, unless there be some special reason assigned for his election; and no voucher or vouchers of any member or members shall be taken as satisfying evidence of any applicant's qualification for membership.

SEC. 5. Honorary members shall consist of such distinguished *savants* and others as may be deemed worthy of the compliment. They shall receive their appointment by a vote of the Society, and upon motion of some member present.

SEC. 6. Each individual, prior to taking his seat as a member of the Society, must sign the Constitution, inscribing his name and address in full, specifying in what capacity he attends, and if a delegate, the local society which he represents. Every member shall be entitled to the diploma of the Society, to which shall be attached the seal* of the Society, and the signature of the President and Permanent Secretary.

SEC. 7. The seal of this Society shall always be kept by the Permanent Secretary.

*The seal that has been adopted shows enough of the beautiful design of the seal of the State to declare the common origin of the Medical Society and of the State of California, while the cock that was wont to be sacrificed to Esculapius, representing "vigilance," is crowing out 1870, the year of reorganization; and the serpent, emblematic of "sagacity and long life," lies entwined around the doctor's staff at his feet. Thus Vigilance and Sagacity typify the qualities a physician should possess under the direction of Minerva.

ARTICLE III.

OFFICERS.

SECTION 1. The officers of the Society shall be President, four Vice-Presidents, one Permanent and two Assistant Secretaries, a Treasurer, and a Board of Censors of five members. These officers shall be nominated by a committee of one member from each county represented on the morning of the second day of the meeting, and be elected by ballot, except Permanent Secretary. Each officer shall hold his appointment for one year, and until another is elected to succeed him.

SEC. 2. The President shall preside at the meeting, preserve order, give a casting vote in case of a tie, and perform all other duties that custom and parliamentary usage may require. He shall organize and open the meeting next succeeding his election, by an address on some subject connected with medicine, or with the interests of the Society. He may also fill by appointment all vacancies that may occur from death or other causes.

SEC. 3. The Vice-Presidents, when called upon, shall assist the President in the performance of his duties, and during his absence, or at the request of the President, one of them shall officiate in his place.

SEC. 4. The Permanent Secretary shall authenticate the proceedings; give due notice of time of next meeting; serve as a member of Committee on Publication; preserve the archives and unpublished transactions of the Society; hold correspondence with other permanently organized societies, both domestic and foreign, and see that all the published transactions are promptly distributed to the members entitled to receive them. This officer shall not be subject to annual election, and shall not be removed except for cause shown.

SEC. 5. The Assistant Secretaries shall record the minutes, notify members of committees of their appointment, and of

the duties assigned them; and in the absence of the Permanent Secretary, one of them shall perform his duties.

SEC. 6. The Treasurer shall have immediate charge and management of the funds as a property of the Society, and hold them subject to the disposal of the Society. At each annual meeting he shall present a report, setting forth the amount of moneys received, as well as the amount disbursed, and for what purpose.

SEC. 7. The Board of Censors shall examine the credentials of all candidates for admission to the Society, and if such credentials are found to conform with the requirements, as enacted in Article II of this Constitution, the Board of Censors shall recommend said applicants to the Society as suitable candidates for election.

ARTICLE IV.

MEETINGS.

SECTION 1. The regular meetings of the Society shall be held annually, and commence on the third Wednesday of April.

ARTICLE V.

STANDING COMMITTEES.

SECTION 1. The following standing committees, each composed of five members, of whom the first named is Chairman, shall be nominated at every annual meeting by the President elect, for the purpose of preparing and arranging business for each ensuing year, and for carrying into effect the orders of the Society not otherwise assigned:

On Practical Medicine and Medical Literature.

On Surgery.

On Obstetrics.

On Medical Topography, Meteorology, Endemics, and Epidemics.

On Indigenous Botany and the Domestic Adulteration of Drugs.
On Public Hygiene and State Medicine.
On Histology and Microscopy.
On Mental Diseases and Medical Jurisprudence.
On Medical Education.
On Publication.
On Arrangements.
On Prize Essays.
On Gynecology.
On Diseases of Women and Children.
On Ophthalmology.
On Necrology.

SEC. 2. The Committee on Practical Medicine and Medical Literature shall prepare an annual report on the more important improvements effected in this State in the management of individual diseases; the improvements and discoveries which may have been made in Anatomy, Physiology, General Pathology, Therapeutics, and Medical Jurisprudence.

SEC. 3. The Committee on Surgery shall prepare an annual report on all the important improvements in the management of surgical diseases effected in the State during the year, and as far as can be ascertained, the number of capital operations performed, with their results.

SEC. 4. The Committee on Obstetrics shall prepare an annual report on the important improvements in the obstetrical art, and in the management of diseases peculiar to women and children, effected in the State during the year, together with such remarks touching these subjects as they may think proper.

SEC. 5. The Committee on Medical Topography, Meteorology, Endemics, and Epidemics, shall prepare an annual report on the peculiarity of the soil and climate of the different sections of the State, with the diseases to which they are

subject; also, the endemics and epidemics which have prevailed throughout the State during the year.

SEC. 6. The Committee on Indigenous Botany and the Domestic Adulteration of Drugs shall prepare an annual report on the indigenous medical botany of the State of California, paying particular attention to such plants as are found to possess valuable medicinal qualities, and are not accurately described in standard works, and the localities where they are found. Also, to report on the quality of drugs brought to our market, with the view to correct the evils arising from the extensive introduction and sale of spurious and sophisticated articles.

SEC. 7. The Committee on Public Hygiene and State Medicine shall prepare an annual report on all subjects germane to this important branch of medical science.

SEC. 8. The Committee on Histology and Microscopy shall report and demonstrate such valuable facts and discoveries, annually, bearing directly or indirectly on medicine and surgery, as they may think proper.

SEC. 9. Committee on Mental Diseases and Medical Jurisprudence. This committee shall report on all psycological questions, and on such matters appertaining to medical jurisprudence as in their judgment may be deemed advisable. The duties of these committees shall be defined by a committee of three, appointed by the President for that purpose.

SEC. 10. The Committee on Medical Education shall prepare annual reports on the general condition of medical education in the State of California, as compared with the state of medical education in other States of the Union, noticing the several medical institutions of the State, their course of instruction, the practical requirements for graduating, the modes of examination for conferring degrees, and the reputed number of pupils and graduates at each during the year; together with such other matters as they may deem worthy

of consideration in reference to medical education and the reputable standing of the profession.

SEC. 10½. The President shall annually appoint a Committee on Medical Legislation, whose duty it shall be, by all lawful and honorable means, to promote the passage of Acts of legislation approved and recommended by this Society, with discretionary powers in emergencies.

SEC. 11. The Committee on Publication—of which the Permanent Secretary must constitute a part—shall have charge of preparing for the press, and of publishing and distributing, such of the proceedings, transactions, and memoirs of the Society as may be deemed worthy to be published.

SEC. 12. The Committee of Arrangements shall be composed of members residing at the place at which the Society is to hold its annual meeting, and shall be required to provide suitable accommodations for the meeting, to report on the credentials for membership, and to receive and announce all voluntary communications made to the Society.

SEC. 13. In order to afford the Committees on Medical Topography, Meteorology, Endemics and Epidemics, and on Indigenous Botany and the Domestic Adulteration of Drugs, material for their several annual reports, it shall be the duty of the several auxiliary Societies in the State to transmit to the Chairman of these respective committees, on or before the first day of March of each year, a special report embracing such information touching their particular localities as may enable said committees to make full reports on all subjects committed to them.

SEC. 14. The standing committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also, those that seem of sufficient importance to

be read before the Society, by title, abstract, or *in extenso*, upon the second day of the meeting.

ARTICLE VI.

VOLUNTARY CONTRIBUTIONS.

SECTION 1. After the reading and discussion of the annual reports, or at any other period during the meeting of the Society, by the vote of two thirds of the members present, it shall be the privilege of any member to present to the consideration of the Society, either orally or in writing, communications on medical subjects, reports of interesting cases, or such other matters as may be deemed of interest to the profession, which communication may on motion be referred to the Committee on Publication, and if deemed by them worthy of preservation, shall appear among the proceedings.

ARTICLE VII.

FUNDS AND APPROPRIATIONS.

SECTION 1. The funds of this Society shall be raised by individual voluntary contributions, by the sale of its publications, and by an annual tax of five dollars on each member of the Society, on the payment of which he shall be entitled to a copy of all the publications for the year.

SEC. 2. The funds thus raised may be appropriated for defraying the expenses of the annual meetings; for publishing the proceedings, memoirs, and transactions of the Society; for enabling the standing committees to fulfill their respective duties, conduct their correspondence, and procure the material for the completion of their stated annual reports; for the encouragement of scientific investigations by prizes and awards of merit, and for such other purposes as the Society may from time to time direct.

SEC. 3. Any member who shall fail to pay his annual dues for two successive years, unless absent from the State, or

for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of such membership; and no member so dropped shall be reinstated in his membership until he shall have paid all arrears due by him.

ARTICLE VIII.

DELEGATES TO THE NATIONAL MEDICAL ASSOCIATION.

SECTION 1. The Society shall annually appoint, to represent it in the American Medical Association, one delegate for every ten members, and one for every additional fraction of more than one-half this number, whose certificates of appointment shall be signed and duly authenticated by the President and Secretary.

ARTICLE IX.

CODE OF ETHICS.

SECTION 1. The Code of Medical Ethics recommended by the National Medical Association, held in Philadelphia, in May, 1847, having been approved and adopted by this Society, shall have the full force and effect of any Article of this Constitution.

ARTICLE X.

DISCIPLINE OF MEMBERS.

SECTION 1. Any violation of the provisions of the Constitution or of the Code of Ethics adopted by this Society, shall be referred to the Board of Censors for adjudication, from whose decision an appeal may be taken to the Society. Such violation being reported by the Board of Censors to the Society, and established to the satisfaction of a majority of the members, the individual or individuals thus offending shall be excommunicated, and deprived of all the privileges of membership.

SEC. 2. The Society shall have jurisdiction in all cases of appeals taken from auxiliary societies, in which event their decision shall be final.

ARTICLE XI.

AMENDMENTS AND ALTERATIONS.

SECTION 1. No amendment or alteration shall be made in any of the Articles of this Constitution, except at the annual meeting next subsequent to that at which such alteration or amendment may have been proposed, and then only by the concurrence of two-thirds of the members in attendance.

ORDER OF BUSINESS.

The following order of business is presented as a By-Law of the Society, which shall at all times be subject to a vote of a majority of all the members in attendance, and except temporarily suspended, shall be as follows:

I. Organization of the meeting.
II. Report of the Committee of Arrangements on the credentials of members after the latter have registered their names and addresses, etc.
III. The calling of the roll.
IV. The reception of members not present at the opening of the meeting, and the reading of notes from absentees.
V. Reception of members by invitation.
VI. The reading and consideration of the stated annual reports from the standing committees.
VII. Reading and discussion of voluntary contributions.
VIII. The election of officers and place of annual meeting, and appointments by the President elect to fill the standing committees.
IX. Resolutions introducing new business, and instructions to the standing committees.
X. Unfinished and miscellaneous business.
XI. Reading of the minutes of the session about to conclude.
XII. Adjournment.

AMENDMENTS TO CONSTITUTION.

ARTICLE II, SECTION 4. Provided, that no physician be elected a member of this Society from a county having a local society, unless he be a member of the same, or unless there be some special reason for his election.—[1872, October 10th.]

ARTICLE IV, SECTION 1. Amended by striking out in the second line the words "second Wednesday in October," and inserting "second Wednesday in April," as the time for holding the annual meeting of the Society.

ARTICLE III, SECTION 4. Making it obligatory upon the Permanent Secretary to reside in Sacramento, striking out that clause requiring the meetings of the Society to be held in Sacramento, leaving the choice of such place with each session of the Association.—[1873, April 10th.]

ARTICLE IV, SECTION 1. Changing the time of meeting to the third Wednesday in April.—[1873, April 10th.]

ARTICLE VII, SECTION 3. Any member who shall fail to pay his annual dues for two consecutive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of his membership; and no member so dropped shall be reinstated in his membership until he shall have paid arrears due by him.—[1874, April 21st.]

ARTICLE V, SECTION 14. That the standing committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also those that seem of sufficient importance to be read before the Society, by title,

abstract, or *in extenso*, upon the second day of meeting.—[1874, April 21st.]

ARTICLE II, SECTION 4. After the word "Censors," add "by the exhibition of his diploma;" and after the word "election," add "and no voucher or vouchers of any member or members shall be taken as satisfactory evidence of any applicant's qualification for membership."—[1875, April 19th.]

ARTICLE II, SECTION 4. "Shall be entitled to permanent membership" to read "shall thereby become permanent members."—[1875, April 19th.]

ARTICLE III, SECTION 1. After the word "ballot" add "except Permanent Secretary."—[1877, April 18th.]

ARTICLE III, SECTION 4. After "them" add "this officer shall not be subject to annual election, and shall not be removed except for cause shown."—[1877, April 18th.]

ARTICLE II, SECTION 6. After "the" be added "signature of the President and Permanent Secretary."—[1878, April 18th.]

ARTICLE II, SECTION 4. A license from the Board of Examiners of this Society shall also be required of every candidate.—[1878, April 18th.]

ARTICLE III, SECTION 4. Strike out the words "shall reside in Sacramento."—[1881, April 21st.]

ARTICLE V, SECTION 1. Add the words, "on Gynecology; on Diseases of Women and Children; on Ophthalmology; on Necrology."—[1881, April 21st.]

ARTICLE V, SECTION 9. Add the words, "the duties of these committees shall be defined by a committee of three, appointed by the President for that purpose."—[1881, April 21st.]

ARTICLE V, SECTION 10½. The President shall annually appoint a Committee on Medical Legislation, whose duty it shall be, by all lawful and honorable means, to promote the passage of Acts of legislation approved and recommended by this Society, with discretionary powers in emergencies.—[1881, April 21st.]

RESOLUTIONS RELATING TO THE GOVERNMENT OF THE SOCIETY.

Resolved, That a committee of three be appointed by the Chair, to secure the passage of an amendment to the laws organizing the State Board of Health, to enforce the registration of deaths, births, etc., to enable the Board of Health to secure more complete statistics in relation thereto.—[1870, October 20th.]

Resolved, That a committee be appointed by the Chair, to present to this Society, at its next meeting, any amendment which may be advisable, in their judgment, to the present law regulating the registration of births and deaths.—[1870, October 20th.]

Resolved, That the fact of a doctor of medicine being engaged in the manufacture and sale of any secret or patent medicine, or in any way promoting the use of them, shall render him ineligible as a member of this Society.—[1871, October 12th.]

Resolved, As a sense of this Society, that the subject of medical ethics should receive a larger share of attention in medical universities and colleges of the country, to the end that the true principles inculcated therein may be more thoroughly impressed upon the minds of the students, and, in consequence, more faithfully and scrupulously observed by them in their subsequent professional career.—[1871, October 12th.]

Resolved, That the Board of Censors shall recommend no candidate for membership until he shall have presented his diploma or other evidence of being a graduate of a recognized

school, and of good standing; and that no voucher of a single member shall be considered sufficient evidence of his qualifications.—[1871, October 12th.]

The Secretary was instructed to notify the committees of their appointment as soon as made by the President; also, that the Chairman of each committee be requested to notify each member of said committee of his appointment.—[1872, October 10th.]

Resolved, That the Committee on Revision of the Constitution and By-Laws be instructed to introduce into the code a law requiring the reading of the minutes of each session at the conclusion of the same.—[1873, October 10th.]

Resolved, That a Permanent Secretary be elected for the Society, who shall be paid for his services, and that an additional Assistant Secretary shall be appointed each year by the President at the place of the future meeting. The salary of the Permanent Secretary to be fixed by the vote of the Society. —[1873, October 10th.]

Resolved, That the Permanent Secretary be allowed a salary of one hundred dollars.—[1874, April 10th.]

Resolved, That the Chairman of the various standing committees hereafter present a synopsis of their several reports, the reading of which will be considered as fulfilling the provisions of the Constitution.—[1874, April 10th.]

Resolved, That the Publishing Committee be instructed to make out an alphabetical list of the members, together with their places of residence, for the Society, and have the same published in the next volume of Transactions.—[1874, April 10th.]

Resolved, That the President and Secretary be authorized to issue credentials to any member of this Society who desires to attend the meeting of the American Medical Association as a delegate.—[1874, April 10th.]

Resolved, That the Secretary be authorized to issue credentials to any member of the Society desirous of visiting any foreign medical association.—[1875, April 10th.]

Resolved, That this Society recognizes the diplomas of the Toland College, and places its graduates who are now members of this Society, or who may hereafter apply for membership, on the same footing as the graduates of other regular schools.—[1875, April 21st.]

Resolved, That the original founders of the Society are permanent members, and liable to yearly dues, and that all members once admitted are liable to yearly dues, whether simply as a delegate or otherwise.—[1875, April 21st.]

Resolved, That a committee of five members be appointed for the purpose of promoting the organization of County or District Societies.—[1875, April 21st.]

Resolved, That the San Francisco Medical Benevolent Society be and the same is hereby recognized as a local medical society within the meaning of the Constitution of the State Medical Society, which requires its members to belong to a local medical society, when there is one where they reside.—[1875, April 19th.]

On motion, it was ordered that the actual expenses incurred by the Board of Examiners be paid by the Treasurer of the Society. —[1875, April 19th.]

Resolved, That this Society indorse the views of the President as to the importance of the creation of local Boards of Health in every incorporated city and town in the State; and recommend the invocation of legislative aid in the promotion of so desirable an object.—[1877, April 18th.]

Resolved, That the practice of making annual contracts with individuals or societies for medical attendance is not only derogatory to the dignity of the profession, but is an actual violation of the code of medical ethics adopted by the

American Medical Association, as well as the code adopted by this Society.—[1877, April 18th.]

Resolved further, That the name of any member of this association who shall hereafter make or renew a contract for annual medical attendance upon individuals or societies, shall be stricken from the roll of the same.—[1877, April 18th.]

It was ordered that the actual expenses incurred by the Board of Examiners of this Society be paid by the Treasurer of the Society; who shall also pay such expenses of litigation as may be deemed necessary and expedient in order to carry out the objects of the law under which they were elected.—[1877, April 18th.]

Resolved, That the Publication Committee be requested to insert in the proceedings, in a collective form, all the changes in the Constitution, and the resolutions relating to the government of the Society, which have been adopted from time to time.—[1878, April 17th.]

Resolved, That the several local medical societies and Boards of Health throughout the State be requested to urge their respective city, county, and town authorities to establish ordinances or laws requiring all practitioners of medicine within the limits of their respective jurisdictions to report in writing to their respective Boards of Health, all cases of the more dangerous epidemic diseases coming under their professional observation.—[1878, April 17th.]

Resolved, That the Secretary of the Board of Examiners be instructed to communicate with the local medical societies, and urge that they prosecute violations of the medical law, and that they report progress from time to time to the Board of Examiners.—[1878, April 17th.]

Resolved, That this Society appeal to all ministers of the gospel throughout the State, and urge them to use their influence, in all proper and available ways, to discourage the inhuman, degrading, and extensively prevailing practice of feticide.—[1878, April 17th.]

Resolved, Whereas, in consequence of the silence of the profession, the regular practice of medicine is very generally characterized as *allopathy* by the secular press, by medical dogmatists and sectarians, and by the public at large, and the epithet, *allopath*, applied to its individual members through ignorance to a great extent, that the name was introduced by Hahnemann to give distinction to his homeopathic dogmas; therefore,

Resolved, That we the Medical Society of the State of California, in unison with the regular profession throughout the world, do hereby utterly repudiate the name of *allopath*, as applied to ourselves, or *allopathy*, as applied to our practice; the regular profession of medicine knowing no sectarianism in medicine, practicing no exclusive dogma, or in any way restricting its legitimate members in the treatment of their patients, but, on the contrary, giving them the fullest latitude to use any remedy or any means whereby the welfare of the sick may be promoted, their health insured, or their lives prolonged.—[1879, April 16th.]

Resolved, That the Medical Society of the State of California, respectfully request the American Medical Association, at its next annual meeting, to memoralize the Congress of the United States to pass a law requiring the proprietors of all patent or proprietary medicines, offered for sale in the United States of America, on and after July 1st, 1880, to accompany each bottle, box, and package of such medicine with a printed label or circular, plainly stating all the medicinal and other substances contained therein, and their relative proportions; or to adopt some form of legislation that will accomplish the purpose herein contemplated.—[1879, April 17th.]

STANDING COMMITTEES

OF THE

Medical Society of the State of California for 1882-1883.

Practice of Medicine—J. O. Hirschfelder, Chairman, San Francisco; W. F. McNutt, San Francisco; Charles H. Steele, San Francisco; A. W. Saxe, Santa Clara; C. M. Fenn, San Diego.

Surgery—A. B. Nixon, Chairman, Sacramento; P. B. McD. Miller, Oroville; Asa Clark, Stockton; G. L. Simmons, Sacramento; R. A. McLean, San Francisco.

Obstetrics—H. Gibbons, Jr., Chairman, San Francisco; O. O. Burgess, San Francisco; Charles E. Blake, San Francisco; M. A. Cachot, San Francisco; H. S. Baldwin, San Francisco.

Medical Topography and Endemics—M. M. Chipman, Chairman, San Francisco; Thomas Ross, Woodland; T. M. Todd, Auburn; J. L. Meares, San Francisco; G. W. Davis, Sacramento.

Indigenous Botany—Wm. P. Gibbons, Alameda; V. Newmark, Benicia; C. Blake Brown, San Francisco; C. B. Bates, Santa Barbara; G. H. Jackson, Woodland.

Hygiene and State Medicine—J. F. Montgomery, Chairman, Sacramento; A. B. Stout, San Francisco; H. Gibbons, Sr., San Francisco; J. G. Jewell, San Francisco; James Simpson, San Francisco.

Histology and Microscopy—J. H. Wythe, Chairman, Oakland; A. S. Adler, U. S. Army, Medical Department; Joseph LeConte, University of California; A. G. Anthony, Oakland; J. C. Shafter, Olema, Marin County.

Mental Diseases—G. A. Shurtleff, Chairman, Stockton; E. T. Wilkins, Napa; F. L. Dozier, Napa; E. A. Stockton, Stockton; R. W. Murphy, San Francisco.

Medical Education—A. H. Pratt, Chairman, Oakland; C. N. Ellinwood, San Francisco; H. H. Hart, San Francisco; F. B. Kane, San Francisco; B. R. Swan, San Francisco.

Prize Essays—G. G. Tyrrell, Chairman, Sacramento; F. W. Todd, Stockton; J. B. Cox, San Jose; H. M. Fiske, San Francisco; Wm. Lewitt, San Francisco.

Medical Legislation—H. S. Orme, Chairman, Los Angeles; Ira E. Oatman, Sacramento; H. J. Crumpton, Lakeport; T. B. DeWitt, San Francisco; W. R. Cluness, Sacramento.

Gynecology—R. Beverly Cole, Chairman, San Francisco; W. H. Mays, San Francisco; Clinton Cushing, San Francisco; L. M. F. Wanzer, San Francisco; John Wagner, San Francisco.

Diseases of Women and Children—Anabel McG. Stuart, Chairman, Santa Barbara; Kate N. Post, San Francisco; E. S. Mead, San Jose; C. Blake Brown, San Francisco; L. M. F. Wanzer, San Francisco.

Ophthalmology—A. Barkan, Chairman, San Francisco; N. J. Martinache, San Francisco; G. H. Powers, San Francisco; H. Ferrer, San Francisco; Wm. Ellery Briggs, Sacramento.

Necrology—A. H. Agard, Chairman, Oakland; C. G. Kenyon, San Francisco; C. K. Farley, Gilroy; Robert Caldwell, San Jose; Mathew Gardner, Sacramento.

Publication—Wallace A. Briggs, Chairman, Sacramento; G. G. Tyrrell, Sacramento; M. Gardner, Sacramento; G. A. White, Sacramento; Wm. Ellery Briggs, Sacramento.

Arrangements—James Simpson, Chairman, San Francisco; Thomas B. DeWitt, San Francisco; R. H. Plummer, San Francisco; C. G. Kenyon, San Francisco; H. Gibbons, Jr., San Francisco.

CATALOGUE OF OFFICERS AND MEMBERS

OF THE

MEDICAL SOCIETY OF THE STATE OF CALIFORNIA.

PRESIDENTS AND VICE PRESIDENTS OF THE STATE MEDICAL SOCIETY.

1856.

SACRAMENTO.

President.

B. F. Keene.....El Dorado.

Vice Presidents.

E. S. Cooper.....San Francisco.
S. Langdon.....San Joaquin.
D. W. C. Rice.....Yuba.
R. K. Reid.....San Joaquin.
F. W. Hatch.....Sacramento.

1857.

SACRAMENTO.

President.

H. Gibbons.....San Francisco.

Vice Presidents.

R. H. McDaniels.....Yuba.
O. Harvey.....El Dorado.
A. J. Spencer.....Santa Clara.
R. B. Ellis.....Sacramento.
A. B. Stout.....San Francisco.

1858.

SAN FRANCISCO.

President.

A. B. Stout.....San Francisco.

Vice Presidents.

J. P. Whitney.....San Francisco.
C. N. Ege.....Yuba.
A. J. Spencer.....San Jose.
I. E. Oatman.....Sacramento.
J. Morrison.....San Francisco.

1859.

SACRAMENTO.

President.

R. B. Ellis.....San Francisco.

Vice Presidents.

J. F. McLane.....Yuba.
H. W. Harkness.....Sacramento.
O. Harvey.....El Dorado.
W. G. Deal.....Alameda.
J. F. Montgomery.....Sacramento.

1860.

President.

Isaac Rowell.....San Francisco.

Vice Presidents.

Isaac S. Titus.....El Dorado.
C. A. Kirkpatrick.....Solano.
R. B. Cole.....San Francisco.
Ira E. Oatman.....Sacramento.

Corresponding Secretary.

*E. S. Cooper.....San Francisco.

*Dr. Cooper was elected one of the Vice Presidents, but declined—preferring the position of Corresponding Secretary.

Recording Secretaries.

G. Taylor.....Sacramento.
G. L. Simmons.....Sacramento.

Treasurer.

H. W. Harkness.....Sacramento.

1861.

President.

Samuel F. Hamm.....El Dorado.

Vice Presidents.

B. H. Pierson.....Sacramento.
G. L. Simmons.....Sacramento.
C. A. Kirkpatrick.....Solano.
B. A. Sheldon.....San Francisco.
J. G. Tucker.....San Francisco.

Corresponding Secretary.

E. S. Cooper.....San Francisco.

Recording Secretaries.

G. Taylor.....Sacramento.
Isaac S. Titus.....El Dorado.

Treasurer.

H. W. Harkness.....Sacramento.

1870.

SAN FRANCISCO.

(Reorganization of State Medical Society.)

President.

T. M. Logan.....Sacramento.

Vice Presidents.

S. R. Harris ..... San Francisco.
T. H. Pinkerton ..... Alameda.
J. L. Ord ..... Santa Barbara.
G. A. Shurtleff ..... San Joaquin.
D. B. Hoffman ..... San Diego.

1871.

SACRAMENTO.

President.

H. Gibbons, Sr ..... San Francisco.

Vice Presidents.

G. A. Shurtleff ..... San Joaquin.
F. W. Hatch ..... Sacramento.
F. W. Todd ..... San Joaquin.
J. F. Montgomery ..... Sacramento.

1872.

OAKLAND.

President.

G. A. Shurtleff ..... San Joaquin.

Vice Presidents.

T. H. Pinkerton ..... Alameda.
J. J. Franklin ..... Sonora.
W. F. Cheney ..... Butte.
W. F. Hays ..... SanLuisObispo

1873.

SACRAMENTO.

President.

T. H. Pinkerton ..... Alameda.

Vice Presidents.

J. M. Brown.....Solano.
C. A. Kirkpatrick.....San Mateo.
F. W. Hatch.....Sacramento.
H. M. Briggs.....Santa Barbara.

Treasurer,

Ira E. Oatman.....Sacramento.

Permanent Secretary.

G. G. Tyrrell.....Sacramento.

1874-75.

SAN FRANCISCO.

President.

J. M. Brown, U. S. N.....Solano.

Vice Presidents.

A. B. Nixon.....Sacramento.
W. F. Cheney.....Butte.
Martin Baker.....Tulare.
R. K. Reid.....San Joaquin.

Treasurer,

Ira E. Oatman.....Sacramento.

Permanent Secretary.

G. G. Tyrrell.....Sacramento.

1875-76.

SAN FRANCISCO.

President.

A. B. Nixon.....Sacramento.

Vice Presidents.

W. F. Cheney.....Butte.
H. H. Toland.....San Francisco.

W. R. Cluness.....Sacramento.
H. S. Orme.....Los Angeles.

Treasurer,

Ira E. Oatman.....Sacramento.

Permanent Secretary.

G. G. Tyrrell.....Sacramento.

1876-77.

SAN FRANCISCO.

President.

Wm. Fitch Cheney.....Chico.

Vice Presidents.

B. D. Dean.....San Francisco.
N. S. Hamlin.....Yuba City.
M. B. Pond.....Napa.
F. W. Todd.....Stockton.

Treasurer,

Ira E. Oatman.....Sacramento.

Permanent Secretary.

G. G. Tyrrell.....Sacramento.

1877-78.

SAN JOSE.

President.

Washington Ayer.....San Francisco.

Vice Presidents.

L. C. Lane.....San Francisco.
A. W. Saxe.....Santa Clara.
J. M. Briceland.....Shasta.
Thomas Ross.....Woodland.

Treasurer,

Ira E. Oatman.....Sacramento.

Permanent Secretary.

G. G. Tyrrell.....Sacramento.

1878-79.

SAN FRANCISCO.

President.

H. S. Orme.....Los Angeles.

Vice Presidents.

A. W. Saxe.....Santa Clara.
J. M. Briceland.....Shasta.
James Simpson.....San Francisco.
G. L. Simmons.....Sacramento.

Treasurer,

Ira E. Oatman.....Sacramento.

Permanent Secretary.

G. G. Tyrrell.....Sacramento.

1879-80.

SAN FRANCISCO.

President.

A. W. Saxe.....Santa Clara.

Vice Presidents.

F. W. Todd.....Stockton.
J. M. Briceland.....Shasta.
C. G. Kenyon.....San Francisco.
W. A. Washington.....Merced.

Treasurer.

Ira E. Oatman.....Sacramento.

Permanent Secretary.

G. G. Tyrrell.....Sacramento.

1880-81.

SAN FRANCISCO.

President.

F. W. Todd.....Stockton.

Vice Presidents.

G. G. Tyrrell.....Sacramento.
G. W. Davis.....Chico.
A. H. Agard.....Oakland.
C. A. Kirkpatrick.....San Mateo.

Treasurer.

Ira E. Oatman.....Sacramento.

Permanent Secretary.

Wallace A. Briggs.....Sacramento.

1881-82.

SAN FRANCISCO.

President.

Gerrard G. Tyrrell.....Sacramento.

Vice Presidents.

L. C. Lane.....San Francisco.
W. S. Thorne.....San Jose.
B. F. Clark.....Chico.
E. T. Wilkins.....Napa.

Treasurer.

Ira E. Oatman.....Sacramento.

Permanent Secretary.

Wallace A. Briggs.....Sacramento.

1882-3.

SAN FRANCISCO.

President.

L. C. Lane ..... San Francisco.

Vice Presidents.

Ira E. Oatman ..... Sacramento.
Wm. E. Taylor ..... San Francisco.
E. A. Stockton ..... Stockton.
H. J. Crumpton ..... Lakeport.

Treasurer.

Ira E. Oatman ..... Sacramento.

Permanent Secretary.

Wallace A. Briggs ..... Sacramento.

Assistant Secretaries.

Thomas Ross ..... Woodland.
C. G. Kenyon ..... San Francisco.

Board of Censors.

O. O. Burgess ..... San Francisco.
G. W. Davis ..... Sacramento.
G. H. Powers ..... San Francisco.
A. H. Pratt ..... Oakland.
C. A. Kirkpatrick ..... San Francisco.

Board of Examiners.

R. H. Plummer ..... San Francisco.
C. Cushing ..... San Francisco.
W. F. McNutt ..... San Francisco.
James Simpson ..... San Francisco.
H. Gibbons, Jr ..... San Francisco.
A. H. Agard ..... Oakland.
C. N. Ellinwood ..... San Francisco.

Alternates.

J. S. Adams ..... Oakland.
A. M. Wilder ..... San Francisco.
C. G. Kenyon ..... San Francisco.

ACTIVE MEMBERS.

[Those who have an obelisk (†) prefixed to their names are dead.]

Adams, J. S. . . . . Oakland.
Adler, Albert S . . . . . San Francisco.
Agard, A. H. . . . . Oakland.
Aiken, Charles R. . . . . Stockton.
Allen, C. H . . . . . Centerville.
Anthony, A. G. . . . . Oakland.
Ayer, W. . . . . San Francisco.
Baldwin, H. S. . . . . San Francisco.
†Bamford, Wm . . . . . East Oakland.
Barber, E. T. . . . . Oakland.
Barkan, A. . . . . San Francisco.
Bates, C. B. . . . . Santa Barbara.
Bates, C. M. . . . . San Francisco.
Belinge, F. A. A . . . . . San Francisco.
Blake, C. E. . . . . San Francisco.
Blake, C. M. . . . . San Francisco.
Blake, James W . . . . . San Francisco.
Boushey, Julius . . . . . Oakland.
Briggs, Wm. Ellery . . . . . Sacramento.
Briggs, Wallace A. . . . . Sacramento.
Brown, C. Blake . . . . . San Francisco.
Brown, Wm. M. . . . . Oakland.
Bruner, W. H . . . . . San Francisco.
Buckel, C. Annette . . . . . Oakland.
Bucknall, G. J. . . . . San Francisco.
Bucknell, M. E. . . . . San Francisco.
Burdick, J. F. . . . . Oakland.
Burgess, O. O. . . . . San Francisco.
Cachot, M. A . . . . . San Francisco.

Caldwell, H. H.....San Jose.
Caldwell, Robert.....San Jose.
Carothers, J. H.....Martinez.
Chase, Albert.....San Francisco.
Chesley, C. P.....San Francisco.
Chipman, M. M.....San Jose.
Chismore, George.....San Francisco.
Clark, Asa.....Stockton.
Clark, J. H.....Leesville.
Clark, B. F.....Chico.
Clark, Jonas.....Woodland.
Cluness, W. R.....Sacramento.
Cole, R. Beverly.....San Francisco.
Coleman, F. W.....Napa.
Coleman, N. B.....San Francisco.
Cory, Benjamin.....San Jose.
Cox, J. B.....San Jose.
Crumpton, H. J.....Lakeport.
Curless, Wm.....Truckee.
Curran, M. K.....San Francisco.
Cushing, Clinton.....San Francisco.
Davis, G. W.....Sacramento.
Dean, Benjamin D.....San Francisco.
Delmont, F.....Ventura.
Dennis, S. W.....San Francisco.
DeWitt, Thomas B.....San Francisco.
Dozier, Franklin L.....Napa.
Dubois, A. S.....San Leandro.
Dutton, G. W.....Tomales.
Ellinwood, C. N.....San Francisco.
Farley, C. K.....Gilroy.
Fenn, C. M.....San Diego.
Fifield, W. E.....Madison.
Fitzgibbon, G. J.....San Francisco.
Fiske, Henry M.....San Francisco.
Follansbee, E. A.....San Francisco.

Foote, Erastus N ..... Lockeford.
Foulkes, J. F ..... Oakland.
Gardner, Mathew ..... Davisville.
Gibbons, Henry ..... San Francisco.
Gibbons, Henry, Jr ..... San Francisco.
Gibbons, Wm. P ..... Alameda.
Green, T ..... San Francisco.
Grover, W. A ..... San Francisco.
Hamlin, N. S ..... Yuba City.
Hanson, Thomas C ..... Winnemucca.
Hardy, B. F ..... San Francisco.
Hart, H. H ..... San Francisco.
Harvey, O ..... Galt.
Hatch, F. W ..... Sacramento.
Hirschfelder, J. O ..... San Francisco.
Higgins, Alice ..... Anaheim.
Hertel, C. A. E ..... Lodi.
Hodgdon, W. H. A ..... San Francisco.
Holmes, Stillman ..... Santa Cruz.
Hopkins, St. George L ..... Oakland.
Hunt, R ..... Nevada City.
Jackson, G. H ..... Woodland.
Jenkins, T. J ..... Oroville.
Jewell, J. G ..... San Francisco.
Jones, William C ..... Grass Valley.
Jump, Alemby ..... Downieville.
Kane, F. B ..... San Francisco.
Keane, G. B ..... San Francisco.
Kelly, Thomas ..... San Jose.
Kenyon, C. G ..... San Francisco.
Kesseler, A ..... Volcano.
Kirkpatrick, C. A ..... Redwood City.
Laine, J. R ..... Sacramento.
Lane, L. C ..... San Francisco.
Lawlor, Wm. M ..... Oakland.
Legler, H. T ..... Oakland.

LeTourneux, T. J ..... San Francisco.
Lewitt, Wm ..... San Francisco.
Lee, G. P ..... Merced.
Lucas, W. T ..... Guadalupe.
Lusson, P. M ..... San Jose.
Markell, R. S ..... Cloverdale.
Martinache, N. J ..... San Francisco.
†Matson, E. A. ..... Sonora.
Mays, W. H ..... San Francisco.
McCornack, W. A ..... Mendocino.
McLaughlin, M. ..... San Francisco.
McLean, R. A. ..... San Francisco.
McMahan, John B ..... Oakland.
McNutt, W. F. ..... San Francisco.
McQuesten, Charles ..... San Francisco.
Mead, E. S ..... San Jose.
Meares, J. L ..... San Francisco.
Miller, Charles F ..... Hill's Ferry.
Miller, P. B. McD ..... Oroville.
Miller, H. P ..... Davisville.
Montgomery, J. F ..... Sacramento.
Murphy, James ..... San Francisco,
Murphy, R. W ..... San Francisco.
Mussey, J. M ..... La Porte.
Neal, H ..... Hollister.
Nelson, H. W ..... Sacramento.
Newmark, V ..... Benicia.
Niles, W. B. ..... Roseville.
Nixon, A. B ..... Sacramento.
Oatman, Ira E ..... Sacramento.
O'Toole, M. C ..... San Francisco.
Orme, H. S ..... Los Angeles.
Patty, L. H ..... Petaluma.
Pardee, E. H. ..... Oakland.
Pawlicki, L ..... San Francisco.
Payne, F. H ..... Berkeley.

Pelham, J. E. . . . . San Francisco.
Pietrzycki, M . . . . . Rio Vista.
Pike, H. G . . . . . Hopland.
Pinkerton, T. H . . . . . Oakland.
Plummer, R. H . . . . . San Francisco.
Powell, D . . . . . Marysville.
Powers, G. H . . . . . San Francisco.
Post, Kate N . . . . . San Francisco.
Pratt, A. H . . . . . Oakland.
Reid, Robert K . . . . . Stockton.
Reinhart, M . . . . . Berkeley.
Reynolds, G. P . . . . . Alameda.
Robertson, E. B . . . . . San Francisco.
Rodgers, L. O . . . . . San Francisco.
Ross, Thos . . . . . Woodland.
Rucker, Hiram N . . . . . Merced.
Rugg, S. P . . . . . San Francisco.
Sargent, Jacob L . . . . . Woodbridge.
Saxe, A. W . . . . . Santa Clara.
Scott, Jno . . . . . San Francisco.
Shafter, J. C . . . . . Olema.
Shuey, Sarah I . . . . . Berkeley.
Shurtleff, Benjamin . . . . . Napa.
Shurtleff, G. A . . . . . Stockton.
Simmons, G. L . . . . . Sacramento.
Simonton, W. B . . . . . Oakland.
Simpson, Jas . . . . . San Francisco.
Snider, T. A . . . . . Sacramento.
Stansbury, Oscar . . . . . Chico.
Steele, Chas. H . . . . . San Francisco.
Stockton, E. A . . . . . Stockton.
Stout, A. B . . . . . San Francisco.
Stuart, A. B . . . . . Santa Barbara.
Stuart, Anabel McG . . . . . Santa Barbara.
Sullivan, James F . . . . . San Francisco.
Swan, Benj. R . . . . . San Francisco.

Taylor, W. S. . . . . Livermore.
Thorne, W. S. . . . . San Jose.
Todd, T. M. . . . . Auburn.
Todd, F. W. . . . . Stockton.
Trembly, J. B. . . . . Oakland.
Twitchell, W. L. . . . . San Francisco.
Tyrrell, G. G . . . . . Sacramento.
Van Vlack, G. J . . . . . San Francisco.
Voeller, Herman . . . . . Sacramento.
Wagner, John. . . . . San Francisco.
Walker, D. . . . . Bodie.
Wanzer, L. M. F. . . . . San Francisco.
Watts, Nelson. . . . . Chico.
Weldon, W. E . . . . . San Francisco.
Wells, W. H. . . . . Dixon.
Wheeler, P. . . . . Oakland.
White, G. A. . . . . Sacramento.
Wilder, A. M. . . . . San Francisco.
Wilkins, E. T. . . . . Napa.
Woolsey, E. H. . . . . Oakland.
Worthington, H. . . . . Los Angeles.
Wythe, J. H. . . . . Oakland.

610.5
M

TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA,

DURING THE YEARS 1882 AND 1883.

SACRAMENTO:
Beard & Co., Stationers—Lewis & Johnston, Printers.
1883.

PUBLICATION.

MEDICAL SOCIETY
your Committee on
power to secure the
Considerable delay
y the dilatoriness of
ure, we suggest the

ublication is hereby
cation later than fif-
ession of the Society.

say bizarre, opinions
we would also recom-
g resolution, slightly
Medical Association:

gh formally accepting
various standing com-
contributors, holds itself
theories and criticisms
wise decided by special

A. BRIGGS, Chairman.
MONS,
UNESS,
RRELL,
ATCH,
Committee on Publication.

REPORT OF COMMITTEE ON PUBLICATION.

Mr. President and Members of the Medical Society of the State of California: As your Committee on Publication, we have done all in our power to secure the timely appearance of the Transactions. Considerable delay and inconvenience have been caused by the dilatoriness of contributors. To avoid this evil in future, we suggest the adoption of the following resolution:

Resolved, That the Committee on Publication is hereby instructed to receive no paper for publication later than fifteen days after the close of the annual session of the Society.

In view of the heterodox, not to say bizarre, opinions sometimes expressed by contributors, we would also recommend the adoption of the following resolution, slightly modified from that of the American Medical Association:

Resolved, That this Society, although formally accepting and publishing the reports of the various standing committees and the papers of voluntary contributors, holds itself wholly irresponsible for the opinions, theories and criticisms therein contained, except when otherwise decided by special resolution.

WALLACE A. BRIGGS, Chairman.
G. L. SIMMONS,
W. R. CLUNESS,
G. G. TYRRELL,
F. W. HATCH,
Committee on Publication.

Sacramento, 1883.

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THIRTEENTH ANNUAL SESSION

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA.

The Medical Society of the State of California convened in thirteenth annual session in Covenant Hall, San Francisco, and was called to order at 10:45 A. M., April 18th, 1883, by the Chairman of the Committee of Arrangements, James Simpson, M. D., who then read the following Address of Welcome:

MR. PRESIDENT, LADIES AND GENTLEMEN OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: It becomes my pleasing duty, on behalf of the Committee of Arrangements, to bid you a hearty welcome to San Francisco; to offer you, in behalf of the Society for whom I speak and the profession generally, a cordial greeting, and to extend to you, with warm hearts and open hands, the hospitalities of our city. We fully appreciate the honor the Society has conferred upon us in so frequently selecting this city as its place of meeting. We thank you, ladies and gentlemen, for the compliment,

and trust you will all feel that your coming has been to us a source of pride and pleasure as well as profit.

It is a well known instinct in most organized beings to return again and again to the spot where they first saw light. Let me express the hope that this Society will often choose to revisit the locality where it was ushered into existence, and that it may, on many future occasions, favor us with its presence.

In looking around I gladly recognize and welcome the familiar forms of many of the founders and leading spirits of this Society—those active and devoted members to whom it owes its existence and vigor; and with equal delight I hail the several new faces present as proof that we are not without that infusion of young blood which is necessary to perpetuate our organization and insure a long career of active and useful work in the unexplored fields of medical science.

The purpose of the present convention I need not dwell upon. From the order of exercises outlined on the programme, the array of names on the various committees and the voluntary contributors, I have no doubt the result of our mingling and laboring together will be productive of that mutual benefit which comes from an interchange of ideas, the implanting of some new germs of thought in our minds, there to take root and fructify to the honor and advancement of the profession to which we have devoted our energies and lives. But more than this, let us demonstrate at this meeting that the physicians of California are fully apace with the age in activity of thought, in thoroughness of research and boldness of action. Let us congratulate ourselves that we can unite and work together in harmony and good will for the promotion of the great and lofty mission committed to our care.

And now, ladies and gentlemen, after the Society has

ended its labors, I am authorized by the San Francisco Medical Society, the Society of German Physicians, and the Obstetrical Society, to invite you to indulge in that social relaxation which your previous labors will doubtless have rendered necessary, and partake with them of a banquet at the Baldwin Hotel.

Again let me assure you that the committee I represent will endeavor to leave nothing undone that can conduce to your comfort and happiness, and we trust that this meeting will be so conducive to good fellowship and so crowded with happiness that when you depart you will carry away none but pleasant recollections.

Referred to Committee on Publication.

The President, L. C. Lane, M. D., was introduced by Dr. Simpson, and read the Annual Address.

Referred to Committee on Publication.

The following members were reported present during the various sessions of the Society:

Visitors—F. H. Ferrill, U. S. N.; P. DeVecchi, San Francisco; L. C. Freen, Chicago; O. A. Hills, Chicago; W. H. Hammond, Los Angeles; John E. Carnahan, Ogden.

Alameda County—W. S. Taylor, M. M. Chipman, H. T. Legler, E. H. Woolsey, J. S. Adams, T. H. Payne, P. Wheeler, T. H. Pinkerton, W. B. Simonton, C. A. E. Hertel, G. P. Reynolds, J. F. Burdick, E. H. Woolsey.

Los Angeles County—Henry S. Orme.

Merced County—George P. Lee.

Sacramento County—A. B. Nixon, I. E. Oatman, F. W. Hatch, W. E. Briggs, W. A. Briggs, W. A. Grover, J. R. Laine, G. G. Tyrrell, J. F. Montgomery.

San Francisco County—J. W. Blake, G. W. Davis, W. H. Mays, James Murphy, James T. Sullivan, C. A.

Kirkpatrick, Washington Ayer, Julius Boushey, L. M. F. Wanzer, J. G. Jewell, Clinton Cushing, J. O. Hirschfelder, Henry M. Fiske, James Simpson, C. P. Chesley, Albert Chase, W. H. A. Hodgdon, J. L. Méares, Henry Gibbons, Jr., George Chismore, B. F. Hardy, L. C. Lane, C. H. Steele, T. B. DeWitt, W. E. Weldon, C. E. Blake, W. F. McNutt, G. H. Powers, O. Black, A. M. Wilder, Henry Gibbons, Sr., Wm. M. Lawler, O. O. Burgess, S. P. Rugg, H. S. Baldwin, R. H. Plummer, C. G. Kenyon, Charlotte B. Brown, W. E. Taylor, M. A. McLaughlin, M. C. O'Toole, K. Post Van Orden, R. Beverly Cole, Charles Von Hoffman, William Watt Kerr.

San Joaquin County—Robert K. Reid, M. E. Bucknell, C. Annette Buckel, E. N. Foote, J. L. Sargent.

Santa Clara County—E. S. Mead, A. W. Saxe.

Sonoma County—A. McG. Stewart, L. H. Patty.

Yolo County—W. E. Fifield.

The Board of Censors reported as follows:

Your Board of Censors would respectfully report that they have examined and found correct the credentials of the following candidates, and would recommend their election as members of this Society: Clifford Holcomb Gibbons, of Arbuckle, University New York, 1876; Thomas Benton Eagle, of Princeton, University of Buffalo, N. Y., 1864; James Henry Parkinson, of Sacramento, Royal College of Surgeons, Ireland, 1879, and Royal College of Physicians, Ireland, 1880.

O. O. BURGESS,
G. W. DAVIS,
C. A. KIRKPATRICK.

Report received and Secretary instructed to cast the ballot of the Society in favor of the election of Drs. Eagle, Gib-

bons and Parkinson to membership, which having been done they were declared duly elected.

Adjourned to 2 P. M.

AFTERNOON SESSION, APRIL 18, 1883.

Report of Committee on Surgery read by its Chairman, A. B. Nixon, M. D., and referred to Committee on Publication.

M. M. Chipman, M. D., Chairman, submitted a verbal synopsis of Report of Committee on Medical Topography and Endemics. Referred to Committee on Publication.

He also read the following personal explanation:

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: I wish, as a personal privilege, to say a few words in regard to the Report which I made to this Society at its annual meeting for the year 1881.

Whilst traveling about the upper Sacramento Valley in the Fall of 1880, for the purpose of acquiring information regarding the topography and meteorology of that section, being frequently confronted with the deposits, I became interested in the debris question. I found Mr. James McConahaney, telegraph operator at Marysville, to be very intelligent on the subject, and he was kind enough to act as my guide in examining into some of the great changes which had been effected by the filling in of the deposits, in the relative condition of the river channels, streets, property, etc., at that city; and then on my invitation and at my expense, the gentleman accompanied me to the Smartsville mines, and to him I said that as soon as I could arrange in San Francisco to be absent for a while I should return to that part of the country and give the subject an extended and thorough investigation; and that

was all the understanding I arrived at, or pre-arrangement I made with any party or parties in the Sacramento Valley. In this city, I said to the late A. C. Peachy that I was going up the Sacramento Valley to study up the debris question, to make a report upon it; but he, knowing something of the extent of the subject, was incredulous as to my being able to accomplish what I proposed doing, and exclaimed: "My God! you can't do it!" But I assured him that I thought I could unless my health should fail me; and that was the full extent of the connection which any other party than myself had with the matter in this place. In fact, I was quite reticent of my intentions regarding it, as I was apprehensive that my health might give out, and I should in consequence fail of accomplishing my purpose.

Of men of character and intelligence in the Sacramento Valley I requested information of extent of deposits, damages, etc., as affecting their own immediate localities and neighborhoods, but cautioned each one to be sure to make no statements but what will bear rigid investigation, for I had rather make an under estimate than to set down anything in excess of facts; and I made personal examinations as far as my time would permit, and in any case where I had doubts as to information received, I obtained other evidence, and continued to follow the matter up until I became satisfied that I had ascertained the facts. Throughout the whole affair I was acting in the fear of no man, nor in the expectation of reward or favor from any man, or any party or any class or set of men whatever, and the investigation was wholly of my own conception, and was entered into without the advice of or even consultation with any person, and was carried through altogether on my own responsibility, and was altogether of my own doing, without the aid or assistance of any party or parties, except in the matter of informa-

tion furnished, in accordance with the statements of the Report itself.

As to my personal expenses of steamboat fares for self and team, and railroad fares, and hotel and livery bills, and other outlays, I was everywhere charged full price, and I will assure the Society that I made no claims of rebate therefrom; and those expenses as well as the subsequent expense of publishing three thousand copies of the Report in pamphlet form, and distributing through the mails, were all borne by myself.

G. G. Briggs, the viticulturist, after receiving a copy of the Report, sent me his check for twenty-five dollars, as a contribution towards reimbursement of my expenses. I re-enclosed the check in a letter in which I thanked Mr. Briggs for his kind intentions, but stated that I had commenced with the expectation of doing everything at my own expense, and that I could then swear that I had not received one dollar for that effort, and as I preferred to occupy that position, I therefore could not accept the twenty-five dollars.

The reason of my making this statement is, that a talented and prominent member of this Society testified, on a certain occasion, in language which exhibited that he was of the opinion that my Report on the debris question had been gotten up in collusion with other parties, and for another purpose than that which is set forth in the Report, and with the assistance, and even the personal help of another party, or of other parties; and although the gentleman may have changed his mind in reference to the matter since that time, yet as I have never learned of his having publicly or otherwise so stated, and as it would neither be honorable in the individual, or respectful as towards this Society, to take advantage of a position conferred by the Society, to make out a Report professing to be intended for the public benefit,

when in fact it was only for the benefit of the individual himself, or of a certain limited class with whom the individual was in collusion and interested, I have therefore taken the liberty of making this statement in correction of any mistaken impressions which might have been entertained in relation thereto.

The life of an individual lasts only a generation, but a State is supposed to continue for several generations, and we may hope that this State will be in existence and prospering, a thousand years hence, and the people of the future are just as much interested in the lands of the State as are those of the present generation; and when I saw the great amount of destruction which was being perpetrated, I concluded that they were sadly in need of a representative, and in lack of abler or more influential representation, I even assumed to do what I could in the premises myself, and I presumed that a reliable and truthful representation of the facts would have an influence in bringing about proper and equitable measures of relief; and as my labor was performed more in behalf of the future than of the present, I was quite well satisfied to trust my compensation entirely with the future. And that was the basis of my calculation and of my action.

R. H. Plummer, M. D., read Reports of the Treasurer, and of the Secretary of the Board of Examiners.

The former was referred to Auditing Committee, consisting of Drs. Chipman, Jewell and Gibbons, and the latter to the Committee on Publication.

I. E. Oatman, M. D., presented his Report as Treasurer. Referred to Auditing Committee.

The Board of Censors submitted the following reports:

Your Board of Censors would respectfully report that they have examined the credentials of Joseph P. Widney, of Los

Angeles, Toland College, 1866, and finding them correct, would recommend his election as a member of the Society. They would also recommend that F. H. Terrill, Passed Ass't Surgeon U. S. Navy, a graduate of the University of Virginia, 1874, be elected an honorary member of this Society. Also, that they have examined the credentials of Charles Von Hoffman, of San Francisco, a graduate of the University of Leipsic, 1875, and finding them correct, would recommend his election as a member of the Society.

O. O. BURGESS,
G. W. DAVIS,
C. A. KIRKPATRICK.

On motion, the report was received and the Secretary instructed to cast the ballot of the Society in favor of the applicants, and they were declared duly elected.

Your Board of Censors would respectfully report that they have in their possession conclusive evidence that P. B. McD. Miller secured membership in this Society upon the strength of forged and improperly obtained credentials. They would therefore recommend that he be expelled from the Society and that his name be stricken from its roll of membership.

O. O. BURGESS,
G. W. DAVIS,
C. A. KIRKPATRICK.

Report received and adopted.

On motion, J. F. Montgomery, M. D., was granted further time in which to complete his Report as Chairman of Committee on Hygiene and State Medicine.

A. H. Pratt, M. D., Chairman, read Report of Committee on Medical Education.

Referred to Committee on Publication.

The Board of Censors made the following report:

Your Board of Censors would respectfully report that they have examined the credentials of William Watt Kerr, of San Francisco, University of Edinburg, 1881, and finding them correct would recommend his election as a member of this Society.

O. O. BURGESS,
G. W. DAVIS,
C. A. KIRKPATRICK.

On motion the report was received and the Secretary instructed to cast a ballot in favor of Dr. Kerr, who was accordingly declared duly elected.

W. P. Gibbons, M. D., Chairman, read Report of Committee on Indigenous Botany.

Referred to Committee on Publication.

On motion, G. W. Davis was appointed Assistant Secretary *pro tempore*.

J. H. Wythe, M. D., Chairman, read Report of Committee on Histology and Microscopy.

Referred to Committee on Publication.

Minutes read and approved.

Adjourned to 7 P. M.

EVENING SESSION, APRIL 18TH, 1883.

J. O. Hirschfelder, M. D., Chairman, read Report of Committee on Practice of Medicine, and gave an exhibition of the gastroscope.

Report referred to Committee on Publication.

J. P. Widney, M. D., read voluntary paper on Climate and Diseases of Southern California.

Referred to Committee on Publication.

Dr. James Simpson arose to a question of privilege and explained his testimony in the Sacramento debris case. Remarks were made by Drs. Chipman, Ayer, Plummer and Nixon.

On motion of Dr. Simpson the Committee on Publication was instructed to ignore the subject of debris except in so far as it affects the sanitary welfare of the community.

Report of Committee on Publication read and accepted.

H. S. Orme, M. D., Chairman, read Report of Committee on Medical Legislation.

Referred to Committee on Publication.

Drs. I. E. Oatman and T. B. DeWitt read supplemental reports on same subject.

Referred to Committee on Publication.

Minutes read and approved.

Adjourned.

MORNING SESSION, APRIL 19TH, 1883.

Society called to order at 10:45 A. M., by I. E. Oatman, M. D., first Vice-President.

R. Beverly Cole, M. D., Chairman, presented verbal synopsis of Report of Committee on Gynecology.

Referred to Committee on Publication.

Drs. Orme, McNutt, Cole and Brown were elected delegates to the American Medical Association.

The Board of Censors reported as follows:

The Board of Censors would respectfully report the name of Wm. T. Garwood, San Francisco, graduate University of Pacific, 1864, and having examined his credentials find them

correct and therefore recommend that he be elected a member of the California State Medical Society.

G. W. DAVIS,
O. O. BURGESS,
C. A. KIRKPATRICK.

On motion the Secretary cast the ballot of the Society in favor of the election of Dr. Garwood, and he was accordingly declared duly elected.

A. Barkan, M. D., Chairman, read Report of the Committee on Ophthalmology. Referred to Committee on Publication.

The Board of Censors reported as follows:

The Board of Censore would respectfully report the name of J. W. Robertson, of Crescent City, graduate of the Medical Department, University of California, 1880, and having examined his credentials and finding them correct, recommend that he be elected a member of the California State Medical Society.

C. A. KIRKPATRICK,
GEO. H. POWERS,
G. W. DAVIS.

In accordance with instructions, the Secretary cast the ballot, and he was declared duly elected.

Minutes read and approved.

Adjourned.

AFTERNOON SESSION, APRIL 19TH, 1883.

Resignation of Dr. Mary K. Curran presented and accepted.

Drs. A. Barkan and W. E. Briggs presented the following notice:

We hereby give notice that at the annual session of this

Society for the year 1884-5, we will introduce an amendment to the Constitution providing for the establishment of a Standing Committee on Otology and Laryngolgy.

A. BARKAN, M. D.
W. E. BRIGGS, M. D.

Dr. Tyrrell offered the following amendment to the Constitution:

ARTICLE III, SECTION 1. After the words "five members," the Constitution be altered to read: "These officers shall be elected by the Society at large during the afternoon session of the second day of meeting. The election to be by ballot. Except Permanent Secretary, each officer to hold his appointment for one year, or until his successor is elected."

The Nominating Committee made the following report, which was received:

President—Dr. Ira E. Oatman, Sacramento.

Vice Presidents—Drs. W. S. Thorne, San Jose; R. K. Reid, Stockton; W. F. McNutt, San Francisco; R. H. Plummer, San Francisco.

Treasurer—Dr. F. W. Hatch, Sacramento.

Permanent Secretary—Dr. Wallace A. Briggs, Sacramento.

Assistant Secretaries—Drs. Thomas Ross, Woodland; John Wagner, San Francisco.

Board of Censors—Drs. G. W. Davis, San Francisco; C. A. Kirkpatrick, San Francisco; Clinton Cushing, San Francisco; A. G. Anthony, Oakland; G. G. Tyrrell, Sacramento.

Board of Examiners—Drs. R. H. Plummer, San Francisco; C. N. Ellinwood, San Francisco; O. O. Burgess, San Francisco; W. H. Mays, San Francisco; C. G. Kenyon, San Francisco; C. E. Blake, San Francisco; A. H. Pratt, Oakland.

Alternates—Drs. Charles H. Steele, San Francisco; P. Wheeler, Oakland; James W. Blake, San Francisco.

San Francisco.

[illegible] members be permitted to pay

R. H. PLUMMER, Chairman.
A. G. ANTHONY, Secretary.

[illegible] Secretary cast the ballot of the Society in [illegible] presented by the Nominating Com- [illegible] were declared duly elected for the ensuing

[illegible] M. D., Chairman, read Report on [illegible] and Children.

[illegible] Committee on Publication.

[illegible] contributions by J. Bradford Cox, M. D., and [illegible] M. D., were referred to Committee on

[illegible] M. D., read a paper entitled "History of [illegible] California."

[illegible] Committee on Publication.

[illegible] R. Taylor and James Blake were made [illegible] of the Society.

[illegible] that the motion introduced last evening [illegible] Dr. Chipman's paper relative to debris [illegible] measures, is not intended to ignore [illegible] his personal integrity in the prepara- [illegible]

[illegible] Censors reported as follows:

[illegible] Censors would respectfully report that they [illegible] found correct the credentials of the fol- [illegible] and would recommend their election as [illegible] Society: Seeley Frederick Long, of San

Francisco, graduate of the University of New York, 1881; Godefroi La Brie, of San Francisco, graduate of College of Medicine and Surgery of Lower Canada, 1865; Mary Elizabeth Freeman, of Sacramento, graduate of the Cooper Medical College of San Francisco, 1882.

O. O. BURGESS,
A. H. PRATT,
G. W. DAVIS,
C. A. KIRKPATRICK.

They were duly elected.

Dr. Washington Ayer read a paper on Etiology and Non-infection of Sewer Gas.

Referred to Committee on Publication.

On motion, Dr. Benj. Knight, of Santa Cruz, was unanimously elected a permanent member of this Society.

On motion, authors of papers were restricted to twenty minutes in their reading.

Dr. Albert Chase read paper on Treatment of Pneumonia.

Referred to Committee on Publication.

Dr, E. N. Foote submitted a paper on Ovarian Dropsy.

Referred to Committee on Publication.

On motion, the Committee on Legislation was instructed to prepare a medical law in accordance with the suggestions of the Committee on Medical Legislation of the current year.

The Report of a Committee of the Alameda County Medical Society, on Coroners, was referred to the Committee on Medical Legislation with instructions to report thereon.

Dr. E. H. Woolsey read a paper entitled "Two Cases of Double Synchronous Amputation of Lower Extremities."

Referred to Committee on Publication.

Minutes read and approved.

Adjourned.

EVENING SESSION, APRIL 19TH, 1883.

J. Grey Jewell, M. D., read paper on Alcoholism.

Referred to Committee on Publication.

Dr. R. H. Plummer submitted the following resolution, which was adopted:

Resolved, That hereafter the annual sessions of this Society continue three days if necessary.

On motion of Dr. W. P. Gibbons, it was ordered that in future sessions, not more than thirty minutes shall be occupied in the reading of any paper.

John Wagner, M. D., presented a paper which was referred to Committee on Publication.

On motion, the Treasurer was instructed to turn over to the Board of Examiners, for the purpose of publishing a complete catalogue of its licentiates, whatever sum (not to exceed two hundred dollars) shall remain in the treasury after publication of Society transactions.

Reports of Treasurers of Society and of Board of Examiners reported correct by Auditing Committee.

Dues of Assistant Secretaries remitted.

On motion of Dr. Plummer, the Secretary was instructed to notify all regular physicians of the State, not members of this Society, of time and place of our next annual meeting.

On motion, Dr. Ayer assumed the chair, and Dr. Orme introduced the incoming President, Dr. Ira E. Oatman.

Minutes read and approved.

Adjourned.

WALLACE A. BRIGGS,
Permanent Secretary.

GUATEMALA.

An Address delivered at the opening of the California State Medical Society, April 18, 1883.

BY THE PRESIDENT, DR. L. C. LANE.

Believing the facts might prove of interest to the most of you, and add something to the knowledge of the medical topography of a region but imperfectly known, I herewith offer the following observations, recently made during a visit to the Republic of Guatemala.

Guatemala is the most northern of the five States which geographically comprise the region known as Central America; the remaining four being Salvador, Honduras, Nicaragua and Costa Rica. Guatemala lies between 14 and 18 degrees of northern latitude, and hence it is situated wholly in the tropics. Besides, it lies in the northern portion of that singular constriction which the hand of Nature has impressed on a portion of the equatorial region of the western continent, presenting a varying breadth of from three hundred to four hundred miles, between the Atlantic and Pacific oceans. South of Guatemala, the constriction becomes lessened in space until, at the Isthmus of Darien, it is but forty-seven miles wide. All old Californians remember the Isthmus, and carry in memory an unfading picture of a journey across it;

and no matter how many shadows departing years may cast over us, this picture hangs untarnished in the background of our lives, and as we turn again to it,

> "Where o'er hill and valley plays
> The sunlight of our early days,"

I am sure there is awakened in each of our hearts an indefinable thrill of pleasure.

For recreation, as well as to escape the unpleasant season of mid-winter in San Francisco, on the 30th day of last December, accompanied by my wife, I embarked on board the steamer Granada, for Central America. Bi-monthly trips are made thither by vessels of the Pacific Mail Steamship Company. These vessels touch at two Mexican ports and four in Central America, finally arriving at Panama; thence they connect with a line on the Atlantic side, so that in this way the passage can be made from San Francisco to New York, the whole journey being made in about one month. On boarding the Granada, I was struck with the wonderful difference in the accommodations of the present steamers and those of former times. The demands of commerce have banished from use the magnificent side-wheel steamers, so well remembered by all who made this trip twenty years ago. Instead of a floating palace, where all was arranged to afford the highest comfort and luxury to the traveler, we were ushered aboard a screw-propeller, where state-rooms are narrowed to petty closet-like quarters. Though these steamers are more comfortable than the famous Cunarders that cross the Atlantic, still they have but little to remind one of the sumptuous quarters which once floated on these waters, and still less to alter the definition which Dr. Johnson gave of a sea voyage, "imprisonment, with the chances of being drowned superadded." Though the voyage has been bereft of many of its olden attractions, still there

are some persons in whom the desire to hasten in life's feverish struggle is so far absent that they prefer this way of reaching New York. It were well that more of our care-worn business men would take this journey when they return to their old homes in the East; they would thus slow the hand that is measuring off the hours on the dial plate of their lives.

Though our departure was in the season when storms usually lash our coast, still our steamer floated out through the Golden Gate in as smooth a sea as the most solicitous sea traveler could wish. As if to chronicle the approaching conclusion of 1882, the hour of sailing was shifted from morning till late in the evening; so that before we had reached the ocean outside, the sun was sinking in the watery horizon, and casting its last rays on the retiring city and the magnificent coast range of mountains which lie at the entrance of the Golden Gate, and farther beyond encircle our Bay. Around Tamalpais floated those fleecy clouds which are so characteristic a feature of the landscape, and which as "phantom ships" have been so eloquently described by Pollock, one of California's most gifted verse writers. How many argonautic adventurers of every profession and grade of humanity, including even the talented Pollock himself, after all their struggles in our new State, have in the end grasped nothing but gilded clouds, which proved cold and empty forms of bitter disappointment!

The ocean that received us with so placid a face, in less than twenty-four hours assumed his proper wintry dress, and during the remainder of the voyage treated us to continuously rough weather, and on one occasion to a violent storm.

Most persons who have gone to sea, afterwards have their storm-story to tell; and as the stories are much alike, I will omit the narration of mine, except to state that it was en-

countered in crossing the Gulf of Tehuantepec, which seems to be one of Nature's great blow-pipes, through which is expelled from the interior of Mexico a huge blast of wind that reaches far out into the Pacific Ocean. This region is so notoriously the site of storms that every traveler who makes this voyage learns the fact from some older voyager long before he reaches the place. From the mild blow that is generally experienced in crossing the outlet of the Gulf of California, and the still severer one at the Gulf of Tehuantepec, it would seem that Nature has a special love for blowing over a tongue of water that projects into the land.

The storm off Tehuantepec tested the bottom of our steamer, as well as that of every passenger's stomach; the former lost none of her cargo—of the latter so much cannot be said. For over one hour, while the steamer was running before the storm, two sharks kept near her keel; whether these heterocercal monsters snuffed a bouquet ahead, or whether idle curiosity impelled and sustained their diligence, remained an unsolved problem, yet they did prove one thing: that muscle and fin can make as much progress in water as steam. Another observation made was that the phosphorescent agent in a calm, when the water is moved diffuses itself like liquid fire—but during this storm the luminous principle seemed to aggregate itself in isolated centers, so that the amount of light emitted was lessened.

In Hyrtl's Topographical Anatomy—a book in which the student will learn much anatomy and be entertained with much that is witty, quaint and sparkling—the author tells us how, in crossing the Mediterranean Sea, he spent his time in studying the action of the abdominal muscles in the act of vomiting. If Hyrtl had been a voyager on this passage and shared the fate of most of those on board, I am certain that paragraph in his Anatomy would not have been written, since

both his head and his stomach would soon have been empty.

Many attempts have been made to offer a scientific explanation of sea-sickness; to the numerous ones found among medical writers, I will add one more:

In the last few years the German cerebro-vivisectionists have plainly demonstrated that in many instances of cerebral trouble the cardinal condition is that of anæmia, instead of hyperæmia, as was formerly taught, and as the concomitant of such anæmia, nausea may arise in a perfectly sound stomach. In intra-cranial circulation two factors figure— the movement of the blood and the movement of the cerebro-spinal serum. The affluent blood-wave displaces and causes the serum to escape from the skull; the returning blood-wave again acts reversely, and, as it escapes, it is replaced by the entering cerebro-spinal serum. Such efflux and reflux of the serum can be seen in the animal's neck, when the occipito-atloid ligaments are laid bare. The ascent and descent of the subject on shipboard tend to interrupt the uniform movement of the reciprocal currents—both by virtue of their inertia sink as the vessel rises, and rise as the vessel sinks; thence arises disturbance in the equilibrium of the supply of blood to the brain, and, as a further consequence, sympathetic nausea. Long continuance of the cause finally begets a tolerance, and hence a disappearance of the sea-sickness. Should this explanation share the fate of its predecessors, and require that *non sequitur* should be appended to it, let the discoverer of the fallacy refrain from concluding, *propter inscitiam propriam*—(lack of individual experience.)

To get relief, or in a measure to avoid sea-sickness, secure a berth "amidships," and during rough weather maintain the horizontal position, use a light and easily digested diet in which there is no excess of liquids, and remain in bed during the period requisite for digestion. As constipation sooner or

later occurs, this should be relieved by proper remedies; and this latter hint should especially be attended to at the end of a protracted voyage where there has been a transition from a cold to a hot climate. This little precaution, and especially if the traveler will take old Rush's "ten and ten" of submuriate and jalap, will often ward off an attack of fever. Sea-sickness, depending as it does upon causes outside of the body, is not curable by any internal remedy. Chapman's ice-bag, with which many English travelers provide themselves when they cross the Channel, nitrite of amyl, the bromides, etc., are all useless ballast in a sea voyage.

The lines of Byron—

> "Of all the seas the traveler pukes in,
> None is more dangerous than the Euxine,"

plainly point to the universality of sea-sickness; and he who travels by sea may safely include this in the expenses which he must incur in order to see other lands, for none are exempt except a favored few—very few—in whom the partial hand of nature has so cunningly adjusted the elements of the cerebral circulation that they never get adrift, but remain *chock-a-block* during wind and storm.

During our progress southward we were generally in view of land; the western coast of Mexico, consisting of hills and low mountains that were nearly destitute of trees and living vegetation, made a landscape of which the eye seldom grew weary. And this view became doubly interesting when it reminded one, as was often the case, of the Coast Range of mountains of our own State, and recalled those picturesque lines of beauty which nature has so happily traced in the face of California. As in art, one finds different schools with distinctly characteristic methods and styles, so in sketching mountain forms, uniformity has not fettered the hand of nature; such liberty she indulged in while tracing our coast

mountains and foothills, developing a style elegant, distinctive and peculiar. The mountain of Norway with its sombre brow of pines mirrored in the lake at its foot, and the Alpine peak with the green meadow at its base bestarred with yellow flowers, have each their special charm—yet the traveler who has not seen the mountains of California has yet in store for himself a pleasure which the former can never awaken in his heart. And this same originality of character is found from the Columbia River to the tropical region of Mexico, reappearing again, as I have seen in the Andes of Peru. Hence the Sierras, the Cordilleras and the Andes are one and the same sketch made by the hand of Nature—a sketch in which the devices of concealment with which Art often disguises her defects are rigidly avoided, since each outline is distinctly traced on the sky, and is as clearly visible as if seen in a miniature picture held in the observer's hand.

On the eleventh day of our voyage we arrived at Champerico, a small port on the coast of Guatemala. Champerico has commercial importance on account of the large amount of coffee produced in its vicinity and thence shipped. From this point the two distinctive physical characteristics of the State of Guatemala become plainly visible, viz: high lands and low lands. The low lands comprise a highly fertile belt of soil that reaches some thirty miles inland from the Atlantic and the Pacific; between these level plains lies the high land, which rises here and there into mountains of high altitude. The greatest elevation reached is between two and three miles above the sea level. Among the summits that especially attract notice are those of Santa Maria, El Agua and El Fuego, the latter two being volcanoes which have not lost their function of occasionally disgorging their fiery contents.

During our stay at Champerico several of the travelers

were entertained by an excursion upon a short portion of the railroad that is being constructed from the port to a town which is situated about thirty miles inland, and when finished will serve as an outlet to the immense crop of coffee grown in that region. The passengers who enjoyed this short ride were quite carried away in their transports of wonder at the tropical scenes which were thus suddenly opened to their view; and I am sure that each one bears with him many kind remembrances of the hospitalities of Captain Douglass and others who are managing the construction of this road, which is being built by the money and enterprise of a San Francisco company.

From Champerico, a few hours steaming brought us to San José, the leading port on the western coast of Guatemala. Here, as the early morning opened, we found ourselves lying almost in the shadows of the volcanos, Water and Fire, which, though some miles inland, seemed very near, owing to the clearness of the air. From the nostrils of El Fuego (fire) a cloud of white vapor was slowly escaping and idly wreathed, like grey locks, this slumbering Titan's head. As he lay there in his placid sleep no one would have thought that in that quiet form were concealed the earthquake and Force and Might, more than a match for Promethean divinity.

The tumult and bustle consequent upon disembarking are illy consonant with the musing which otherwise such a morning and such scenery might have favored; thoughts of a more practical nature occupied our minds, viz. to go ashore and see that none of our effects were left behind. From the steamer we were carried in barges to the end of a long iron pier, which has been built from the shore into the water about one-eighth of a mile.

To digress here. Nature has been very unequal in her gifts to the eastern and the western sides of the continent.

The eastern coast has been favored with well sheltered harbors—great pockets, as it were, inviting commerce to shelter there its stores. The Pacific side, on the contrary, is remarkably wanting in such resources. Any one who has easily walked on or off a vessel lying at one of the wharves of San Francisco, and who debarks at a Mexican, Central American, or South American port, in a small boat that is compelled to land on a harborless, unprotected beach, has learned that our land-locked bay is a natural gift beyond all price. And these advantages will take a still higher rank, if he should ever land at San José de Guatemala, where the debarkation is done in a basket that is suspended to a crane some twenty feet above. The hoisting of the basket and its swinging shorewards are done by steam. The tossing of the small boat which carries him to the pier, and the swaying revolutions of the balloon-like basket, for the first hour of his advent, will quite absorb his attention.

Among the fellow passengers during the voyage was General Butterfield, a man well known in the history of our country as a fearless champion of the cause of our Government during the late war. His present mission hither was as the representative of, and shareholder in, an American company that has purchased the control of a railroad which has lately been constructed from San José to Escuintla, a town nearly thirty miles inland. General Butterfield, accompanied by Mr. George Crocker, son of the well known capitalist of San Francisco, came for the purpose of completing this road to Guatemala City, the point of its final destination. Besides this work, they are now occupied in making topographical surveys preliminary to building other railroads in Guatemala, and the adjacent State of Salvador. The great energy, unusual powers of endurance, experience in the field, and personal ability of General Butterfield, and above all, his

self-denying devotion to the enterprise which has been delegated to him, shows that Northern capital has exercised keen discretion in the selection of its management; and if a prediction be allowed, it requires no special acumen to discover that the hand which led martial hosts to success in war, will conduct peaceful legions here to no less signal victories in their battles with tropical nature.

On arriving at San José, General Butterfield invited a number of the passengers to accompany him in an excursion from the port to Escuintla, the present terminus of the road. The strange novelty of the tropical flora of the country traversed by the road, many of the shrubs and trees being in bloom, and others being quite covered with the rich flowers of the trailing convolvulus, was one of those rare spectacles which falls on the traveler as a new revelation, that remains as an unfading picture forever afterwards, giving delight as often as the hand of memory unveils it. In that panoramic scene which was rapidly unfolded to view, as the train sped on its course, were now and then caught glimpses of fields of coffee and sugar cane, and of the thatched huts of the Indians, under the shade of cocoa palms and orange trees. At Escuintla, the party was the recipient of a choice collation, in which the wine of the North mingled its gift with that of the passion-flower and a half dozen other tropical fruits. This finished, the party next visited a church built over two hundred years ago, and ascending its half-ruined tower, looked on one of the most beautiful landscapes of Guatemala—a scene which the artist's pencil, not written words, can portray. Thirty miles away lay the Pacific, of which the moving waters, mirror-like, gave glimpses of reflected light; while nearer by, cloud-shadow and sunlight disputed dominion over vast scopes of evergreen forests and fields, whose verdure rejoiced in unending Summer; on the other side,

close at hand, rose the huge forms of Water and Fire, their bases enriched with a zone of forests, interrupted now and then by cultivated fields of cane and coffee; these green fields could be descried reaching far up toward the summit, and seemed to hang, like emerald gems, on the mountain's side.

In the evening, after the rest of the party had returned aboard, we drove to the plantation of Concepcion, which lies at the base of the volcano of Agua. This large estate, which is devoted to the raising of sugar cane, is the property of Baron Duteil, who came to Guatemala many years ago. This place, which is in a high state of cultivation, besides its wonderful natural endowments, shows in the rare felicity of its improvements that its owner has kept even pace with nature; for one is surprised at the rare combination of comfort, luxury and elegance which blend in the appointments of its manorial mansion. From Escuintla, there leads to it an excellent road, the latter portion of which passes through an alameda or avenue of cocoa palms, bordered on each side by a broad expanse of sugar cane, all of which was overlooked from the cool piazza of the front of the house. In the rear was another open piazza where meals were served, and where long vistas of field, forest, gorge and volcano, took the place of the ordinary wall pictures. A third side looked on a fountain of playing water and on a short avenue of trees that ended near a swimming bath. This bath was constantly replenished by pure water from a neighboring stream, the water constantly falling, cascade-like into a stone reservoir some thirty feet long, that was overarched by a bower of roses and passion flowers; the perfume of these flowers, and their tints yet visible in the moonlight, the faultless temperature of both air and water, made a picture of oriental luxury such as will recall to the reader's memory Irving's sketches of the Alhambra.

The amount of sugar produced at Concepcion was so enormous that upon the item of spirits distilled from the waste material the government receives a tax of over five thousand dollars a month.

Leaving Concepcion on the following day, we next proceeded to Barcenas, a large coffee estate that lies somewhat off the main road which leads from Escuintla to the City of Guatemala. This place is owned by Señor Samayoa, who is the Minister of Agriculture, and is reckoned among the wealthiest men of Central America. Our late arrival prevented us from seeing much of the estate that night, but early the next morning the most of the party were on the grounds, eager and curious to see growing coffee. One saw there this precious shrub in every stage of growth, from the nursery plants, which were just peering through the earth, under cover to screen them from the hot sun, to the full grown shrubs, some ten feet high, which were laden with nearly ripe fruit. This shrub resembles somewhat a cherry tree in foliage, though the leaves are more glossy. The fruit grows in crowded clusters, without stems, in the axils of the branches. Each berry, when ripe, is of purplish tint, and if perfect, it contains two hemispherical grains with their flat faces opposed. The pulp of these berries is of a sweetish taste, and possesses none of the qualities of coffee. From the growing shrub we were next conducted by Mr. Klee, the manager of the estate, to the mill where the coffee berries were being hulled or threshed. During the short time that we regarded this work, several hundred pounds of coffee passed through the mill. The consumer of coffee in the North will value his cup still more when he learns that the annual product of a shrub is never over four pounds, and on an average is not much more than one pound; that the producing period of a shrub is not more than fifteen years; and that each grain of

coffee, from planting until it reaches the sack, receives the labor of over a dozen persons. The coffee which commands the highest price in the market, known as the pea coffee, but here called "caracolillo," from its resemblance to a snail shell, is of small, round form, like a miniature egg, and would appear to be a dwarfed product, where the berry, instead of two grains, contains but one grain.

From Barcenas we proceeded to the City of Guatemala, the first hour's ride being through coffee fields belonging to the estate of Samayoa. In many places I observed that the shrubs were partly shaded by the plantain or banana shrub. After some four hours ride we reached the City of Guatemala, situated on a large plain about one mile above sea level. On arriving here nearly all persons are rendered sensible of the high altitude through the increased demand made by the lungs for more air, owing to the rarity of the atmosphere.

The City of Guatemala was originally built about thirty miles from the present location, close to the base of the volcanos, Water and Fire, and at a slightly less elevation than that of the new city. The old city, now named Antigua, was twice destroyed by the adjacent volcanoes—once in 1541, and again in 1762. In the first disaster, on a dark night when rain was rapidly falling, there gushed forth a flood of water from one of the mountains, which was quickly followed by an eruption of lava from the other; and these destructive forces were soon reinforced by earthquakes, so that the town was utterly destroyed, burying in its ruins the families of Alvarado and others of the primitive conquerors. The old Castilian conquerors, shrinking from no peril and dismayed by no disaster, rebuilt the city, to suffer a similar fate from earthquakes two hundred and twenty years later.

A visit to Antigua shows the traveler a wonderful pile of ruins, surpassing anything of the kind to be seen elsewhere

in America. I saw there the fallen, or half fallen walls of over one hundred and fifty churches, of which enough remained to show their former greatness. Walls cleft and partly or wholly fallen, fragments of broken columns, ruined arches, broken statuary, fallen altars, shrubbery and trailing vines disputing with mutilated figures for place in the weather stained niches, and beasts stabled on floors where once the worshiper knelt, are the characters in which the earthquake and volcanic violence have left record of their advent of ruin.

The country around Antigua is of unsurpassed richness. As in the fertile fields around Ætna and Vesuvius—so here in these volcanic crucibles Nature has compounded a soil most favorable to vegetable growth; here the coffee shrub bends under its richest harvest, and fruit trees so numerous that their names would fill a half page, with slight toil offer their luscious products to man; here all plant-life revels in riotous luxuriance. No wonder that in such an Eden numerous warnings passed unheeded; and only when the demon of destruction had converted the place into one vast tomb did the inhabitants forsake this paradise—and lest there should be a return thither, the fallen city is more securely guarded than if sentineled by a flaming sword turning every way at its gates, since not a week passes there without an earthquake, nor a day without some tremor, as revealed by the sisometer.

The present City of Guatemala contains sixty thousand inhabitants, and is located on a large plain that is surrounded on the east, north and west by ranges of mountains. When the city is looked at from an eminence it presents a very imposing appearance, owing to the walls of the houses being of snowy whiteness and many of the churches being models of architectural beauty. The streets, crossing at right angles, are of good width and paved with stones of two forms—one of flat blocks, placed at regular intervals, while the other,

smaller and more irregular, fill the spaces between the blocks —and the whole is so disposed as to slope towards the center of the street, there forming a shallow gutter. The sidewalks, sloping towards the street, are paved with square blocks of stone. The city is provided with a system of sewerage which, though imperfect, is superior to that of San Francisco.

To digress to the important topic of sewers, I would here say, that when abroad a few years ago, I made a careful and laborious examination of the sewerage system of London, and from the Board of Works of that metropolis procured drawings and description of the same; also, a description of the Paris system; all of which is contained in a biennial report of the California State Board of Health. An examination and comparison of the system of San Francisco with that of London or Paris convicts us of egregious ignorance and stupidity, and will cause every lover of our city to wish that he he could blot out this page from the municipal history of San Francisco; yet, so long as official position, votes, and sewer builders and cleaners are so closely articulated, so long will mismanagement prevail and epidemic pestilence make its recurrent visitations.

The houses of Guatemala are built of adobe, stone, or brick, the walls being from two to three feet thick, to afford security of escape in case of earthquakes. To have sufficiency of room, they must occupy much more space than even large houses do with us. The floors are made of half-burnt brick, resting on a concrete foundation, and are covered with a thin straw matting. One great pest of the country is fleas, which are not confined to the untidy houses of the poor, but they hold sway in every household. While Nature has added to the size of other insects in the tropics, she has amply compensated for diminished volume of the flea by increased activity, and, as if to favor this commonwealth of insects, men-

tha pulegium has been omitted in the flora here. I would advise one of those enterprising Dalmatians who are growing flea powder in the neighborhood of Stockton, California, to come here and plant the flea-driving pyrethrum. If he will do so, he will enrich himself, and win the praise of this flea-ridden people.

The water used here comes through time-worn and rickety aqueducts, from a natural fountain, some miles distant. Arriving in the city it is conducted to one or more reservoirs in each block, which are constructed in a corner or side of a house, in which the rattling sound of the falling water is heard, as one passes near it. From such a reservoir, several houses are supplied. The water, before its use as drinking water, is caused to pass through the porous wall of a large filter that is made from *tufa* or volcanic rock. Besides cleansing, this stone filter cools the water. Such filtration might be adopted with advantage in San Francisco.

As public institutions for the indigent sick, one finds two in the City of Guatemala, one for soldiers, and the other for civilians. Through the courtesy of Dr. Joaquin Yela, I was enabled to see and inspect each; also from his annual report I was able to get much information respecting hospital management here.

The Military Hospital is located on elevated ground, three miles from the city. The diseases seen there were those resulting in the main, from dissipation, the largest contingent being furnished by the Guard of Honor. One found that the Southern sons of war are nearly akin to those of the North, in making frequent pilgrimages to an unlawful shrine; and as Vulcan caught in a net the war god during an unlawful visit to his own household, so the followers of Mars often re-enact his role, insomuch that their *follies* cost the State as much as their wounds in its defense. Hygienic

philanthropy has here a hard problem to solve. Who has the wisdom to do it?

A visit to the Hospital General for civilians showed me an institution as well conducted as similar ones in the United States. Disease here is classified as internal, or medical, and external, or surgical; and each of these sections is under the charge of an intelligent corps of medical attendants. The whole number of patients treated here during the year 1882, was five thousand four hundred and ninety persons; of these there remained on hand January 1st, 1883, two hundred and forty patients; whole number of deaths in 1882, four hundred and thirty-three. The medical and surgical service is rendered gratuitously, with the permission of the service utilizing the hospital for medical instruction. Internes, chosen by the faculty of the medical school, reside in the hospital, and to some extent replace the regular physicians during their absence. The physicians and surgeons attending the hospital are mainly graduates of the Guatemala school, who have been abroad and added to their qualifications by a period of study in Paris.

In the treatment of the sick, Dr. Yela told me that they had abandoned the use of stimulants. This course had been adopted after a trial of Todd's mode of treatment by stimulation, under which it was found that more died than under the present non-stimulant method.

A striking feature in the building is that the main portion of it is constructed in the form of a Greek cross; the effect of such an arrangement is singularly impressive, as, standing in the center the eye wanders along the four avenues, each lined with two rows of beds for the sick. Suffering in its many forms seemed strikingly in place there, and to re-enact the great scene whence sprang this sacred symbol, which devotion and self sacrifice have carried to every clime and

planted on every shore where throbs a human heart.

The immediate attendance upon the patients is rendered by Sisters of Charity; and to this is due the remarkable order, the scrupulous cleanliness and the faultless system which characterized the internal management of this institution. A large range of observation, embracing nearly all parts of the globe, has proven to me that such management is the best, and it is quite inexplicable why the French authorities have lately become so hostile to it, and are so determined to abolish it. Armand Despres, of resolute heart and great readiness as a writer, firmly resists this change in the Parisian hospitals, and though in the minority, he is giving his opponents much trouble. Besides observation abroad, personal experience at home, while acting as surgeon to a hospital in San Francisco, under the care of the Sisters of Mercy, has fully proven to me the excellence of this system, for one sees that untiring devotion to the wants of the sick, utter extinction of self, and final death at the altar at which an unchangeable purpose had been pledged, find there their fullest realization.

The sources of maintenance of the Hospital General are novel and worthy of mention. These are moneys derived from the sale of lots for the burial of the dead, income from bull fights, a lottery established for this purpose, a certain percentage of bequests left by will, also bequests occasionally made to the hospital, and a part of the collections made in the churches.

The burial of the dead is under public management, and is an expensive matter, costing those of average means from five hundred to one thousand dollars. The interments are made a few hours after death. The body is deposited in a stone or brick receptacle that is on a level with the earth, while about this there is built a somewhat pretentious mauso-

leum of brick or stone masonry. And these houses for the dead are of such uniform similarity, that when one has seen one, he has seen the whole. The old cemetery is now nearly full of such vaults.

In a part of the burying grounds, there is a portion separately walled off, over the entrance to which is the inscription, "Creencias Varias," meaning, "dissenting creeds." Here one finds a number of vaults containing the bodies of those who, wandering to this remote land in quest of fortune, have found a tomb instead. On reading the inscriptions, one learns that these unfortunates have wandered hither from almost every country of the Protestant North. As a rule, Art has given them tombs of more simplicity, and absent Friendship places fewer votive offerings thereon than one finds over the graves of their Catholic brethren. Yet for the absent wreath and cross, Nature has made amends, in replacing the one, by the trailing passion flower, and the other, by rearing one constructed of stars, in the Southern sky, for the Southern Cross, as a faithful sentinel, nightly watches their ashes.

The largest sum of money derived from any source is that received from the hospital lottery. This mode of raising money, which would awaken scruples with many of us, is here regarded as strictly legitimate. Since I have been here the hospital has received the proceeds of a concert in which there were two hundred players on wind instruments. But of all the means of amusement whence money is procured for hospital support, the most famous is bull fighting. As this is a national entertainment of the Spanish, I am glad to be able to furnish a description of what I saw of it. There is a special amphitheater here for this diversion, where standing room, plain or choice seats may be had, according as the visitor is willing to pay. The central arena is fenced off by a

barricade from the spectators. Though this barricade is strong, yet a few weeks prior to my visit a bull broke it down, and added to the fete by tossing some of the spectators. From two to five thousand persons witness the fights. An hour or two before the spectacle it is announced by a number of persons, dressed in a grotesque style, parading the streets with dancing and shouting. The show commences with music from an excellent band, among whom is one who plays upon an instrument of aboriginal origin. This instrument resembles in sound that of the wooden pianist on Kearny street, San Francisco. A company of soldiers are drilled, and display evidences of good training. In one act there is an intention to represent and personate a party rapidly growing here that has as its ultimate purpose the union of the five Central American States into one confederation. There next follow some creditable equestrian feats. One rider is especially a favorite, and as he appears your neighbor at your side is sure to tell you that he is the best rider in Central America. This prelude having concluded, the fighters of the bull, partly on foot and partly on horseback, take their positions for the combat. These men are dressed in colors calculated to madden the animal. All being ready, the gate opens, when to the sound of music the bull is ushered into the midst of his persecutors. He is first teased, enraged, and chased by those on horse, who goad and annoy him in every possible way, taking care, however, not to seriously wound him. This is the most exciting and critical period of the show, since as soon as the bull is well maddened, he may make an unexpected dash at a horseman, and throw both man and horse to the earth. Whenever the bull accomplishes this masterly feat, he follows it up by attacking the unhorsed rider. The first time I witnessed a fight this occurred, and for a moment the man was in extreme jeopardy; yet through the aid of

his comrades he escaped, being more fortunate than a man who two weeks prior to this was so thrown and killed by the bull thrusting his horn through his chest. After a short time of chasing and teasing, during which the footmen flung red blankets in front of the bull, and paper-winged darts which fixed themselves in his sides, the animal became tired, and seemed to lose his spirit. As soon as he gave signs of this he was allowed to escape, and a new one allowed to enter. After a half dozen bulls are thus treated, in which, as a rule, neither man nor beast is much hurt, the show concludes by a bull being caught and haltered, when two men mount his back and ride him, to the infinite merriment of the spectators. In bull fighting as practiced here, no charge can be made of foul play, since it is never permitted to kill the animal, though that privilege is conceded to him; and should the latter catastrophe occur, most naturalists would agree that the great law of evolution would not be violated, since there would be a *survival of the fittest.*

From Dr. Yela's annual report we learn that of the five thousand four hundred and ninety patients treated there were but sixty-three who had had tubercular consumption, and of these but about one-half had died. A striking difference from what one finds in England or in the United States; here deaths from tuberculosis amount to less than eight per cent. of all deaths, while in the North a large proportion of deaths in hospital practice is from consumption. Guatemala contains a population of one million and a quarter of inhabitants. Nearly half of these are Indians, the descendants of the aborigines who are civilized. The remaining population consists of Ladinos, who are a mixture of Spanish and Indian, and, besides these, a small number of foreigners of various nationalities. Pulmonary consumption almost never occurs among the pure blooded Indians, but is chiefly found among the Ladinos.

Goitre is of common occurrence, being seen chiefly among the Indian women. As there is a prevalent opinion here that the cure of a goitre tends to develop scrofula, hence those subject to it seldom apply for treatment. Cretinism, closely associated with goitre elsewhere, does not occur here. The prevalence of goitre renders this a good place to test Chatin's theory in regard to the origin of this disease. According to him there is an absence of iodine in the water, air and food in regions where the disease prevails, and the general absence of the disease is owing to the fact that the most of the world is daily taking, in some form, a small dose of iodine, at least enough to retain its thyroid glands in decent limits. This subject is treated of exhaustively in Moleschott's "Circle of Life," and the reader of that section is surprised at the vast array of observations which the last twenty-five years has brought in support of this theory.

In the vicinity of Guatemala there is a small colony of lepers, some fifteen in number, who are kept apart from the remaining population. The cases are found among Spaniards who are thought to be descendants of the Moors. The disease consists of a hypertrophy of the skin and the subjacent tissues, which finally ulcerate and slough. The disease is not considered to be contagious.

Among those connected with the surgical service of the Civil Hospital Dr. Monteiros holds leading rank for learning and for ability as surgical operator. His recent return from a professional tour abroad was the subject of special comment by the daily press, as well as the occasion of an ovation on the part of his medical brethren. On the day of his return several of his friends, as is the custom here, took carriages and went out several miles to meet him. The ovation, however, had an abrupt and melancholy termination, in this: that one of the teams ran away and seriously if not fatally injured two medical students.

The Practice of Medicine is better fortified here against charlatanism than in the United States. No one can practice unless he is a graduate of a school of recognized standing, and then if that school be a foreign one, permission to practice is only given to those who pass a satisfactory public examination, and present a thesis written in Spanish, the whole costing the applicant about one hundred and fifty dollars. In passing along the streets here one is struck with the almost total absence of medical signs; and even if one is seen, it is in characters so small as to be illegible at a short distance.

There is a medical school here that was founded many years ago. It is located in a picturesque building, one story high, and contains a large number of lecture rooms, among which was one very handsome apartment, for use on public occasions. In the dissecting room I found tables much like those to be found in one of the medical schools of San Francisco. The number of the tables, as well as the receptacle for dissecting material, seemed quite inadequate to the wants of one hundred students who are in attendance. The building is partly surrounded by a botanical garden, which, however, contains more ornamental plants than those used in medicine. The museum contains an excellent collection of specimens of natural history—better than one would find in connection with any medical school in our country. So much however cannot be said of the pathological collection, which was sadly meager. In the pathological museum one finds a rare example of a deformed infant, resembling closely that of Ritta and Christina, in Buffon's Museum, Paris. This child has a double head, one trunk, four arms, and four legs. Professor Meigs, of Philadelphia, never failed in his course of lectures to deliver an eloquent discourse on the Sardinian monster, in which there seemed to be duality of mind working in unison. The exhibition of Ritta and Christina brought money to the

parents; but this luckless Guatemaltecan died at birth, and its Indian father, believing its mother to be a witch, abandoned her.

Before admission to the medical school, the candidate must pass a satisfactory examination in the common branches of education; he must also possess some knowledge of the French, German, and English languages. A knowledge of Latin, once required as a prerequisite, has been dispensed with. This is singular, when one remembers the close relation existing between medical literature and that language; and besides, the Spanish is the most direct descendant of the old Roman tongue. The words of that ancient people, as a sacred *heirloom*, have been passed from lip to lip across the bosom of twenty centuries, and in many cases with slight change, except that in their transit they have acquired more precision and harmony. So close is the kindred that if Livy and Cæsar were to appear in this picturesque land of the Cordilleras, they might readily fancy they were in a Roman colony.

The curriculum of study here embraces the same subjects as in our schools; there is, however, far more time given to natural history and the physical sciences, but much less to pathology and practical discipline. The curriculum embraces six years of about ten months annual study. As seen, the time of study exceeds that of England, France or Germany.

As before said, one finds two different climates in Guatemala, the one of the coast or low lands, which is intensely hot, and the intermediate high lands, in the midst of which the Capital is located, and where one finds a mild or cool temperature; and these physical differences lend their respective impress to disease, engendering fevers of extreme virulence in the low lands, while those of the higher plains have a milder type. An approximate notion of the tempera-

ture of the high lands may be formed from the following figures taken from a table of observations made by Mr. McNider, during his stay in the City of Guatemala:

	MORNING.	NOON.	EVENING.
January	56°	68¾°	65°
June	63¼°	73°	66¾°
Yearly average	61°	73°.	67°

Mr. Hall, resident American Minister, tells me that at midnight he has observed the thermometer to stand as low as fifty degrees. The average rainfall for the year is fifty-five inches. The rain commences in May and lasts for about six months, the largest fall being in September. Slight showers occur during the remaining so-called dry months. During my stay, which lasted from the 16th of January until March 16th, there were a number of showers.

Owing to the unhealthfulness of the coast, wealthy land owners seldom live there; in fact, their visits there are brief and infrequent, knowing, as well they do, that such visit is at the risk of life. On the contrary, they spend the most of the time in Guatemala City. During my stay in the city, Mr. Ramon Aguirre, one of the prominent men of the place, found it necessary to visit the coffee region adjacent to Champerico. On his arrival there he was attacked with pernicious malarial fever, and died in four days. This fever, evidently of miasmatic origin, is called here *amarillo* or yellow fever. The person attacked vomits violently, becomes intensely yellow, and as a rule, soon dies. These are the characteristic features of our Southern yellow fever, but as the disease is not contagious, and is often curable by large doses of quinine, physicians here do not regard it as identical with black vomit, or yellow fever. The experienced physicians of this country claim that they can nearly always cure the disease here, if they are called in time. Sometimes, however, the attack falls with such fulminating violence that

no remedy can stay it. Such was the case of Aguirre, who died, though he had skilled medical service constantly at his side. Those persons whose business compels them to pass much time on the coast, as a rule, find immunity from disease by constantly using quinine. For this purpose, from eight to ten grains daily, should be taken.

The traveler here soon learns to duly appreciate the value of cinchona. Take away its alkaloid extract, quinine, and in less than two generations the low lands of Central America would relapse to barbarism; without this precious safeguard, steamship lines would never have been established here, nor would Northern engineers have been able to penetrate the tangled fastnesses of the dense woods, to survey routes for railroads. Hence medicine, in the discovery of the virtues of Peruvian bark, has contributed the most potent factor towards the advancement of civilization in these regions where nature so stoutly resists its progress. Humboldt, in his "Ansichten der Natur," shows that this discovery is wholly due to our profession; for instead of its being an aboriginal remedy, he found in his travels among the Andes that the Indians, when attacked with fever, could not be persuaded to take this Peruvian bark.

As epidemic diseases, cholera and small-pox occasionally present themselves in Guatemala. In a village not far from the Capital, a few years ago, there was an invasion of cholera. As such a thing had hithertoo been unknown its appearance on this occasion was attributed to the foreigners having poisoned the water, and this belief took such strong hold of the native mind that several of the foreigners deemed it prudent to leave the place for a time. Small-pox, during my visit, was prevailing epidemically in some of the northern villages, yet owing to the medical profession encouraging vaccination, and likewise to the assistance rendered by the

Government in the same direction, the disease was arrested.

The advantages of vaccination have received further proof and illustration in this country. Among the Indians it is difficult to accomplish vaccination, the same prejudice existing among them concerning it as one finds in certain places further north; hence where small-pox appears among the Indians it is very fatal, while the most of foreigners who have been vaccinated escape the disease. Still, despite these plain facts, which are in accord with European and Mexican experience, one finds in all parts of the world a few minds who will not accept them. As instances of such recalcitrant minds are Hammernjk of Vienna and Guerin of Paris. The former headed a deputation a few years ago that petitioned for the abolition of compulsory vaccination, while to-day the French Academy of Medicine often hears a harangue from Guerin against vaccination; and, true to his convictions, I saw that Guerin did not isolate small-pox patients from others in his wards, showing an indifference as though he thought that the disease was non-contagious. As analogues to these malcontents are those who claim that Shakespeare did not write his plays, who deny that Newton discovered the law of gravitation, or Harvey the circulation of the blood, or Columbus America. Such men would fain steer against the irresistible stream of truth, and hope to gain notoriety from the consequent wreck of their puny barks. Latin America, notwithstanding its intense devotion to orthodox medicine, has recently been favored with the advent of such an illy compounded genius, who indulges his pen in occasional diatribes against vaccination, and advises as a preventive to take homeopathically prepared pillets of vacinia. Instead of going with the Vicar of Wakefield across lots to the church he would with the Vicar's wife reach thither by a road three miles around—that is, on his wall-eyed infinitessimal colt

he would reach the blood through the circuitous route of the stomach and bowels. Those who accept Hahnemann's sacred Trilogy, that all existing disease originated in itch, barber's itch or syphilis, will probably not find it hard to believe that the vaccine germs which are launched on this eventful pilprimage down their throats will be lucky enough to find a point at which they can debark somewhere along the winding shores of the alimentary canal.

Some years ago there was erected in the City of Guatemala a monument to commemorate Jenner's discovery of vaccination. Is it not an opprobrium to the north that only in this remote corner of the earth has there been just recognition of this great discovery.

A singular fact, and which has been the subject of much study by Dr. Stoll, a very intelligent physician of Guatemala, is that the art of mesmerism is known and practiced by the Indians of Guatemala. Dr. Stoll is preparing a work upon one of the Indian races here, in which this subject will be thoroughly treated of. This is another fact to be added to those which Figuier has collected in his "History of the Marvelous," in which it is shown that sorcery, witchcraft, somnambulism, hypnotism, table-rapping and mesmerism are branches of one common tree, in the trunk of which are bound up all the races of humanity.

Among Americans who deserve special mention in connection with the west coast of Central America, is Captain J. M. Dow. This gentleman, now agent of the Pacific Mail Steamship Company, at Panama, about 1856 commanded the Columbus, a small steamer that made monthly voyages along the coast, stopping at the leading ports. Through the intelligence and industry of Captain Dow, commercial relations were inaugurated with these States, which, small at first, have grown to large proportions, and have been the means of giving to the Ununited States those advantages which England

has had the shrewdness to grasp and monopolize on the west coast of South America. As an example of the development of trade, may be mentioned that in the commencement the yearly amount of coffee exported from Guatemala was but thirty thousand sacks; now there are annually shipped three hundred thousand sacks. Besides his services to commerce, Captain Dow has made valuable contributions to natural science in the discovery of new species of plants, fishes, and animals. As an addition to botany, he has discovered in Costa Rica one of the most beautiful orchids of tropical America, which has been named after him by foreign scientific authorities. In the Gulf of Fonseca he has found a fish having four eyes, and which is viviparous; and finally, he has found a species of tapir previously unknown. Such work on the part of one so busily occupied with other matters so foreign to scientific pursuits, is in the highest degree praiseworthy. His work has been duly recognized both at home and abroad. In England, where proper caution is exercised in awards to merit, he has been admitted to membership of one or more of the learned societies.

This article would be incomplete without special mention of Dr. Fenner, who came from New Orleans to Guatemala a few years since, and through his high attainments in medicine has reached the first position in his profession. Besides being the consultant usually asked for where especial skill is required, Dr. Fenner has had the rare fortune to reach a near place to the government, so that no one is on more intimate terms than he with General Barrios —that remarkable man whose fearless heart, upright character, and unfaltering patriotism have safely conducted Guatemala through so many perils, and at this hour are causing most eyes to turn towards him as the one most competent to rule, in the event of these five republics entering into one common union.

REPORT ON PRACTICAL MEDICINE.

BY J. O. HIRSCHFELDER, M. D., CHAIRMAN.

It is the pleasure and the duty of our State Medical Society upon these annual meetings to mark the progress of medical science, and in pursuance of this object I shall lay before you some of the advances that have been made in the field of medicine proper.

In the past year, as in those that have preceded it, there has been much groping in the dark, and many an ignis fatuus has been followed as the true light of science. Much that had seemed to be conclusively proven has been overthrown, and here and there a fact that stood upon feeble evidence has become firmly established.

The use of pilocarpine has been very much extended. It has been found to be of the greatest service in the treatment of pleuritic exudations. Many cases that heretofore have refused to permit a disappearance of the fluid by any procedure except the aspirator, have been found to become rapidly absorbed upon exhibition of the drug. In the City and County Hospital we have found it to be of the most signal service, large effusions disappearing over night after the administration of a single dose of jaborandi, the excretion of urine being very much increased. It has been likewise seen to be excellent in the œdema of nephritis. Under these conditions the excretion of large quantities of water by the

mouth and skin is very frequently followed by the absorption of the fluid in the tissues. There is danger, however, of producing uræmia thereby, inasmuch as the products of tissue metamorphosis that have been stored up in the plasma of the tissues are taken up by the blood, and in some instances the latter may thereby become so concentrated a solution of these products of metamorphosis that uræmia ensues. I have seen one such case, and numerous others have been reported in the medical journals.

Guttman has likewise advised the use of pilocarpine in diphtheria and croup. He found in a large number of cases that with the secretion of a large quantity of saliva occasioned by the remedy the membrane becomes loosened and recovery ensues. It has, however, been found by other observers that this recovery is by no means constant, and that furthermore, there is danger of occasioning a fatal collapse by the lowering of the blood pressure induced by the drug. Of this fact there can be no doubt. It should warn us to be circumspect in its use, under no circumstances employing it where the heart has become enfeebled and the tension of the pulse reduced. It has been observed that upon exhibition of pilocarpine the bronchial mucus becomes more fluid, and its use has been recommended and found beneficial in cases of bronchitis sicca with viscid secretions.

Nitro-glycerine has found a very largely extended use, and it is certain that in it we possess a drug of most potent qualities. Its action is similar to that of nitrite of amyl, only not so evanescent. It produces a dilatation of small arteries, whereby the resistance to the circulation and with it the blood pressure, becomes diminished.

In œdema, especially of nephritis, it is undoubtedly the best remedy we possess. I have found it to cause a disappearance of anasarca where long continued use of pilocarpine

had been futile. As stated before, it causes a dilatation of the small arteries, and consequently a reduction of blood pressure. The blood pressure being less, a smaller quantity of fluid is forced out of the capillaries than is otherwise the case, and thereby the misproportion between secretion and absorption of plasma, which occasions œdema, is removed.

It is yet a mooted question whether high blood pressure will cause cirrhosis of the kidney or whether these two conditions simply go hand in hand. At any rate it is claimed that in many cases high blood pressure exists and may be demonstrated with the sphygmograph long before the examination of the urine reveals the slightest abnormity. Under such circumstances the use of nitro-glycerine is productive of great benefit.

The old theory of Lutton and Gull, of arterio-sclerosis, is again receiving attention, and many cases that have heretofore been inexplicable are cleared up thereby. Arterio-sclerosis, independent of any other pathological condition, has become firmly established. Its symptoms have lately been described by Dr. Fraenkel, of Berlin. It is brought about either by sedentary habits with accumulation of gas and fæces in the intestines or by excessive manual labor and the abuse of alcohol. Under such circumstances the left ventricle hypertrophies to perform the increased labor demanded of it. As long as the hypertrophy continues to be sufficient to meet the needs of the circulation no ill results are apparent, but the moment this compensation fails signs of disease occur. In light cases we observe simple shortness of breath and vertigo, whereas in severe forms we observe angina pectoris and cardial asthma. The use of nitro-glycerine under such conditions lightens the labor of the heart and averts many of the dangers.

In other cases than those of arterio-sclerosis we find in

angina pectoris a high pulse tension. Wherever this is the case, and it is by no means true of all forms of the disease, the nitro-glycerine acts with magical promptness.

There are likewise many cases of migraine due to anæmia of the brain, from spasm of the vascular muscles, occasioned by irritation of the cervical sympathetic nerve. Here this drug likewise immediately removes the pain, acting precisely as does the nitrite of amyl.

In asthma, which is now looked upon as being due to a cramp of the muscles in the bronchioles, it has the same efficacy as has the nitrite of amyl, and in epilepsy many good results are claimed for it, whether with reason or not remains for the future to decide.

Hyosciamine has received a well deserved position in the materia medica. It has been found in mania to act more promptly and more certainly than any other drug with which we are familiar. Indeed, in a large number of instances it has quieted the patient when opium and the bromides and chloral have been inert. The tolerance of the drug varies excessively, and very minute doses have sometimes occasioned most untoward symptoms. In paralysis agitans, in a number of instances, it has accomplished what until now no other drug has produced—a cessation of tremor. It is true that the tremor has until now always returned as soon as the use of the drug has ceased; but a few hours of quiet during the waking hours is the greatest boon to the unfortunate sufferer from this disease, which has up to the present time baffled all intervention. The remedy has not yet received the attention that it deserves, and doubtless in the future we will hear more of its powers.

The active principle of cannabis indica has been isolated in the form of the tannate of cannabine. It has been found to be vastly superior to morphine as a hypnotic, and if the

claims that have been made in its behalf should be verified, will do much to supplant the preparations of opium.

A most peculiar surrogate of quinine has been found. It is a substance that is synthetically prepared and possesses most wonderful powers. This new remedy is termed kairine. We are told by Filehne that it invariably reduces the febrile temperature without occasioning the slightest unpleasant symptom. With the fall of temperature profuse perspiration ensues, which continues as long as the fall of temperature lasts. As soon as that occurs the sweating ceases, and for about two hours the temperature remains low. If the drug be not again administered the temperature rises and a chill ensues. If, however, another dose of the remedy be given no rise of temperature occurs. It is possible, by means of the kairine, to preserve the temperature normal for an indefinite period, it being merely necessary that it be administered in two-hourly doses. Should these statements be substantiated kairine would indeed be a most wonderful substance.

The use of quebracho has become more extended, and although it does not invariably produce the desired effect, still it promises to become a most valuable remedy. It has been found by various authors to be most excellent in the various forms of dyspnœa, for many of which we have no other remedy. Still, in some cases it is apt to produce a diarrhœa, which is perhaps to be feared in phthisical patients.

Frictional electricity has again been introduced into the ranks of medicine. It was the first form that was employed but had been entirely replaced by the galvanic and the faradic currents. It has lately received the attention of neurologists and many excellent properties have been claimed for it. It is yet too early to accurately formulate its use or to determine under what conditions it is preferable to the other forms. In some cases of paralysis, where nerve degeneration has far ad-

vanced and where the muscles will not respond either to the galvanic or the faradic current, Franklinization will bring about muscular contraction. It seems to possess the property of overcoming contractures more potently than does either of the other methods of electrization. The objections to its use are its expense and the cumbersomeness of the appliances. Like everything new it is receiving much attention, and it may be that the results may warrant its further employment.

In pathology, no very great discoveries have been made during the past year. Disease germs have received much attention, and it is probable that the causal germ of typhoid and tuberculosis, have been with certainty recognized.

The bacillus tuberculosis is of greater medical and practical interest than any other, and I may therefore be excused for calling your attention to it. This little germ has been discovered and isolated by Dr. Koch, of Berlin. He found that the bacillus could be stained only by alkaline aniline solutions, and that by this property it could be readily differentiated from all other bacteria. He cultivated the organism and found in about two hundred inoculations of the culture substance, that tuberculosis invariably ensued. The bacillus may readily be discovered in the sputa of tubercular patients by the method of Koch, modified by Ehrlich. The sputa are dried in a thin layer upon a cover of glass, and stained by aniline violet, dissolved in an aqueous solution of aniline oil. The cover is then immersed in a strong solution of nitric acid, whereby the color is taken from everything but the bacillus in question. Upon examining the preparation under the microscope, the bacillus stands out as a violet rod in a colorless field. Numerous investigations have verified the presence of this bacillus in the sputa of consumptives, and its absence in all other cases. I have myself been able to confirm these results in about one hundred cases.

It has been stated by Dr. Schmidt, of New Orleans, that the bacillus is no bacillus, but simply a fat crystal which can readily be extracted with boiling ether. I have repeated the experiments of Schmidt and find that he is in error. If we stain a preparation and then wash it with boiling ether, and examine the specimen, it is true the bacillus has become invisible, but upon restaining, the bacillus comes back again, proving that the ether simply washes out the coloring matter. Dr. Schmidt has lately retracted his error and acknowledged that his crystals were no bacteria at all.

Until now the discoveries of Koch have not produced the fruit so earnestly wished for--the cure of consumption. Inhalations of various antiseptics have been most diligently employed, but none has yet given much encouragement. From the great efficacy of iodoform in tubercle of the bone, it was thought that it might possibly become a specific for tuberculosis. Careful investigations prove its inefficiency. We have given the drug an honest trial at the City and County Hospital, in the form of long continued inhalations of an etherio-alcoholic solution, but have seen little or no effects. The inhalation of various volatile antiseptics has been diligently examined, but until now none has been found which cures the disease. It is true, by continuous inhalation, the fever can be allayed, the expectoration reduced, and in many cases the condition of the patient can be somewhat benefited, but cured he cannot be, according to the best evidence thus far presented.

It is not probable to me that we will ever be able by any known remedy to cure the disease, for even should we be able to inhale sufficient antiseptic to destroy all germs in the bronchial tubes or the alveoli, there would still remain unassailed the germs in the structure of the lung that are beyond the reach of the inhalation. If we would cure consumption

by antiseptics, we must find one that can be given internally without injury to the body, in doses sufficient to destroy the bactrium. In other words, we must find a drug that is harmful to the disease germ, but not to the organism.

A few months ago Debove, of Paris, promulgated a statement that by forced feeding consumption could be cured. He found that when introduced through a stomach catheter, immense quantities of food could be retained, even when vomiting ensued upon swallowing small quantities. This fact seems very strange, and probably none of us would accept it without verification. He found that his cases of consumption were highly benefited by such forced alimentation. These experiments have been repeated by others, and the highly colored reports of Debove have not been fully confirmed. Dujardin-Beaumetz, for example, found that in truth the nutrition of the patient improved, but that no change in the condition of the lung occurred. It seems to me that an error is apt to be made in the investigation of this and other remedial agents. We are too prone to forget what is the condition of the lung we desire to cure. It is surely asking too much of a remedy to demand that upon a month's trial it should cure large suppurating cavities. We know how difficult it is to cause a healing of a lung cavity due to bronchiectasis, for example, where the condition of the patient is otherwise excellent, and where there is no sign of tubercle. We should take cases early, before the lung tissue has begun to break down, and see whether the new method of treatment will removal from the sputa the bacilli (which have already been found in the very earliest stages of the disease), and whether it will stay the onward progress of the disease. Such a result is by no means a vain hope. We frequently have occasion, at post-mortem examination, to prove the fact that phthisis may cure itself. How much forced alimentation will contribute to that end, remains to be seen.

Not long ago, Langenbuch of Berlin astonished the medical world with the dictum that locomotor ataxia could be cured by stretching the sciatic nerve. It has been found that such stretching has a very decided effect upon the spinal cord, and the operation has been performed in a large number of cases —in some with marked improvement, in some with complete cure, in others, again, without the slightest benefit. I have had the operation performed in six cases; in but one of them a cure of the disease resulted. One patient died during an epileptic attack a few days after the operation. Another patient has fully recovered; so that now, about a year after the operation, he performs duty as a nurse in the hospital. I cannot say that the other patients were specially benefited by the operation. Of those who have had large experience with the treatment, some find it efficacious; others, not at all. Still the positive results in the value of their evidence overbalance the negative, and as the operation, if properly performed, is by no means a dangerous one, further employment of it is recommended.

Within the last year, it has become a tolerably well established fact that there is a causal relation between the majority of cases of locomotor ataxia and syphilis. Large statistics have proven that syphilis is frequently a forerunner of tabes. Erb, for example, finds that eighty per cent. of his cases have had chancre, whereas, of the other cases of disease of the cord, only twelve per cent. had been previously so affected. Acting upon this fact, the anti-syphilitic treatment has been inaugurated, but not with very brilliant results. It has not been found to be of much service in old cases, although a few cases have already been reported where this mode of treatment has been of the greatest service in early stages. Our modes of diagnosis have been so perfected that we can now recognize the disease in its inception, and it may be that we

will not be so powerless against this, the most frequent of spinal disorders, as we have heretofore been.

Among the new inventions the gastroscope has attracted considerable attention. It has been found to be possible to introduce an electric light into the stomach, and by means of properly constructed lenses and prisms, to look into the living stomach. The instrument, which is made by Leiter, of Vienna, is most admirably constructed, and, indeed, enables the observer to see into the viscus without very much trouble. How much practical benefit will be derived from this wonderful instrument remains to be seen.

SALICYLIC ACID IN CERTAIN PHASES OF RHEUMATISM.

BY C. M. FENN, M. D.

[SUPPLEMENTARY REPORT ON PRACTICAL MEDICINE.]

It was my privilege many years ago to call the attention of the profession to the use of potassium permanganate in that type of rheumatism which is supposed to have its origin in arrest of the processes concerned in the digestion and assimilation of starchy aliments. The attempt was then made to show that a salt, holding so large a proportion of oxygen ($K\,O, Mn^2\,O^7$), in feeble affinity, if introduced into the system, would part with enough of that element to transform the lactic acid into carbonic acid, etc., and thus set in motion again the obstructed systemic wheels. In cases of the kind which are largely recruited from the ranks of those who have brought about this stasis by venereal excesses,* dissipation, and exposure, I believe the potash salt will give practical, if not theoretical satisfaction. I did not recommend it as a spe-

* I regard venereal excesses as the chief predisposing cause of this type of rheumatism. I should like to see the ætiology of the disease studied in this direction. Among its victims may be found the chronic rheumatic subject, who goes down with an acute attack at every change of the barometer. In such cases physicians of twenty-five years ago were wont to prescribe quinine and alkalies. For this class of sufferers, and their name is legion, I believe salicylic acid (and possibly its salts) is best adapted, and shall offer the records of a few cases in support of my opinion.

cific in all cases, for I believe rheumatism to be a hydra-headed monster, which no *single* medicinal weapon can subdue. Colchicum, perhaps, enters into a larger number of formulæ than any other one drug. There is another form of this disease, however, in which neither potassium permanganate, nor colchicum seems to meet the indications. It is, perhaps, more frequently arthritic in character; is prone to attack the debilitated, and those who have passed the meridian of life under full speed.

Just here let me confess that I am quite unable to account for the brief yet brilliant career of this remedy. Indeed, if the many successful cases reported are to be credited, no drug has ever accomplished such results in so short a time. In 1877, a lengthy report of cases was read before the Richmond Academy of Medicine, which was remarkable in its details. A writer in a Virginia journal of same year recorded a case of acute articular rheumatism, cured in three days by salicylic acid. The pages of *Braithwaite* and other journals, from that date to 1880, were full of cases so treated. The writer, at about that date, began a collection of cases with a view to publication, but before much progress had been made, the remedy had apparently gone out of fashion. The reasons for this sudden exit may have been, first, that the difficulty in finding a solvent for the salt led to other combinations, and, finally, to the disuse of all of them; second, the error in regarding it as a specific for all forms of the malady, and hence using it without discrimination in this respect. The most serious objection, however, arose from the fact that with the increasing demand for the drug our manufacturing chemists were forced to use carbolic acid, instead of wintergreen and salacin, in its composition. The resultant salt may have contained the same chemical equivalents, but its effect upon the mucous membranes was quite different as well as hurtful.

It may not be out of place here to detail briefly the method of administering it, pursued by the writer. The most important step, in my opinion, was to select suitable cases. The remedy was usually given in capsules or rice-wafer, but if a solution was preferred, I endeavored to use a solvent that would not change the character of the salt. Pepsine, therefore, became an important adjunct to each prescription, as through a series of experiments I had found it to increase the solubility of many rebellious salts. If possible, also, the salicin or wintergreen preparation was obtained. And in the event of any intolerance on the part of the stomach, as will be observed *was* the case in one or two of the histories recorded further on, each dose of the salicylic acid was preceded by half a drachm of hydrobromic acid—an idea suggested to me after noting its power in removing the unpleasant effects of quinine. Furthermore, I discontinued the remedy, or decreased the doses, as soon as the prominent symptoms yielded. In fact, if six twenty-grain doses did not produce a profound impression upon the attack, it was a fair inference that pathology, not therapeutics, was at fault, and that it was useless to continue the drug. The *National Dispensatory* denies its antipyretic properties, nor does it explain its action. Nor shall I attempt it further than to say that it seems to carry by assault the attack, to abort it, much as heroic injections of nitrate of silver vanquish acute blennorrhagia.

E. M., aged thirty-five, wine merchant, had been taking an irregular course of potassii iodidum for syphilitic sequelæ. Latterly, his duties had kept him in the cellar, which was damper than usual, by reason of the rainy weather. Thursday, January 12th, he was prostrated by an acute attack of rheumatism. At the time of my first visit, nine A. M., the right foot, ankle, and knee, were red, swollen, and very painful; temperature in axilla 105°; pulse 130, full and strong.

He was crying with pain. Ordered six scruple doses of salicylic acid, to be taken in capsules, every two hours, until relief was obtained, or all taken, and to wrap the limb in cotton. At eight P. M. the fifth powder was taken, after which he slept soundly all night. The change wrought in twenty-four hours was certainly magical; pain gone; temperature almost normal, and swelling rapidly subsiding. He is to take the remaining doses at intervals of six hours. Sunday he was on the street, and Monday morning resumed his duties at the store.

H. B. H., cabinet-maker, aged forty-five, had been a victim to chronic rheumatism for more than fifteen years, varied with frequent acute attacks. He kept himself in form and at labor about half of the time by the use of strong claret. During that period, for these attacks he had tried change of residence from lowland to highland, town to country, and external and internal remedies by the gross, until he had become resigned to Abernethy's quaint suggestion and prescription, six weeks in bed. After applying juniper and turpentine for two or three days, he sent for me Wednesday morning. His hands, like boxing-gloves in appearance, were intensely swollen and painful; pulse rapid and feeble; temperature abnormally high. As in the previous case, he was to have six twenty-grain doses of salicylic acid in rice wafer, every two hours, and envelop the hands in cotton batting. The wafer containing the second dose broke in its downward course, producing so much smarting and irritation in the fauces that word was sent of his inability to continue the remedy. The messenger returned with an ounce of hydrobroicm acid labeled, "half a teaspoonful to be taken before each wafer." He made no further objection to the remedy, and in four days returned to his bench, confessing that never before had one of his attacks passed off so quickly. He came to regard the medicine as a genuine specific in his case.

About five months after this, a New York friend wrote to him that a new specific for rheumatism had recently been introduced into that city, and throughout the East; that it might be found in San Francisco, but not elsewhere on the Pacific coast. With my explanation, Mr. H. was pleased to find that it was his now old remedy, salicylic acid.

Judge H., speculator, aged sixty-three, a typical specimen of the class who "go it while they are young," succumbed to a sharp attack of arthritis. No one expected him to recover. His previous habits suggesting a gouty diathesis, I put him on a preparation of colchicum, etc., in connection with quinine and stimulants; ordered iodine and cotton to the inflamed joints. He could not remain long in a horizontal position, and slept but little, notwithstanding the use of opiates. As he did not make much progress I prescribed salicylic acid in solution with pepsine, etc. The night nurse, wearied by the querulous exactions of the old gentleman, pushed the remedies inordinately. I found the patient, at my Sunday morning visit, sitting bolt upright in bed, with eyes half open and lower jaw depressed, and in such a stupor or profound sleep that nothing could rouse him. To the uninitiated and officious death seemed imminent, and a change of medical attendant was intimated. I requested a respite of six hours, until the patient could be consulted, assured that my favorable prognosis would be verified. At bed time he was able to say, in cheerful tones: "I heard all the critics had to say, and wanted to cuss 'em, but couldn't." From that moment his convalescence was uninterrupted, with the exception of a slight vesical irritation, produced possibly by the salt. I had previously noticed this effect in the person of a physician who had been using salicylic acid in his gouty attacks. In both cases hydrobromic acid quickly relieved the unpleasant symptoms. I shall not weary the convention with other cases.

REPORT ON RAILWAY SURGERY.

BY A. B. NIXON, M. D., SACRAMENTO, SURGEON IN CHIEF C. P. R. R. HOSPITAL.

MR. PRESIDENT, LADIES AND GENTLEMEN OF THE STATE MEDICAL SOCIETY OF CALIFORNIA: In reviewing the subject of railway surgery in a general way, I have concluded to commence by referring to the principle of REST, as a normal remedial agent, and most potent under favorable circumstances to repair all damages that may be incurred to the human system. Repair is but the repetition of growth, and REST is the necessary antecedent to the accomplishment of both repair and growth. This natural suggestion of a means towards an end should never be lost sight of by the surgeon in the treatment of his cases.

As all operations in surgery of any magnitude are performed whilst the patient is under the influence of an anesthetic, I have considered it not out of place to dwell at some length upon their relative virtue and proper mode of administration. Many deaths are reported annually, caused by the administration of ether and chloroform— consequently the consideration of their use should claim the critical attention of all physicians and surgeons who have occasion to use them, in order that fatal accidents may be avoided as much as possible. The choice of anesthetics generally lies between sulph. ether and chloroform, and both have warm and earnest

supporters. Bromide of ethyl has been strongly recommended on account of its supposed superior safety, but as its effect is very short and transient it has gained but few friends. However, in regard to its virtue, I know nothing from experience. For all surgical operations requiring any considerable length of time, I prefer the use of chloroform, and have been using it more or less during the last thirty-five years, and thus far have not met with one fatal accident. Prof. Julian J. Chisholm, M. D., of the University of Maryland, claims that he has operated upon twelve thousand patients whilst under the influence of chloroform, and met with no fatal case.

Dr. Hunter McGuire, of Richmond, Virginia, reports that in the division of the Confederate army to which he was attached during the late civil war, chloroform was administered twenty-eight thousand times without one death. Dr. Yandell, of Louisville, Kentucky, reports ten thousand cases without any fatal accident, and Dr. Syme claims five thousand cases without any fatal result. This certainly goes far to prove how safely chloroform may be used when properly administered, and sulph. ether, I am very sure, cannot show a better record. Dr. Chisholm says that many of his cases cover those having organic disease of the heart, lungs and abdominal viscera.

As a general rule, anesthetics should not be given upon a full stomach. Before the administration of chloroform, it has been my custom to give the patient one or two ounces of whisky or brandy. This I do to sustain action of the heart against any depressing effect of the anesthetic. If the stimulant is not needed it can do but little harm, and I consider its administration a wise precaution in order to prevent accident. All clothing about the neck and chest should be removed or made loose, so that no impediment on that account

could interfere with the normal respiration. The patient should be laid upon his back in the horizontal position, with a small pillow under the head. The vapor of chloroform is then administered in such a manner as to be largely diluted or mixed with atmospheric air. If loud snoring or difficult breathing occur, the chin should be slightly elevated, thereby straightening the air passage from the nose to the larynx, when the breathing will generally become easy, but if not, and there is a tendency to suffocation, the tongue should be drawn out with a pair of forceps, in addition to the elevation of the chin; but this is something very seldom required. These general rules, when strictly observed, will make either the administration of chloroform or sulph. ether easy and safe. The pulse, breathing, and color of the patient's face, should be carefully watched, in order to avoid accident. To restore a patient, lowering of the head, electricity, artificial breathing, inhalation of ammonia and drawing out the tongue, are the means generally used.

Fear on the part of the patient in regard to the danger of taking an anesthetic has a very depressing effect upon the heart's action, consequently the patient should be confidently assured that there is no danger or risk to his life. Stimulants may safely be given, to exhilarate the patient's spirits, and every little art resorted to calculated to dispel all fear and unpleasant forebodings of evil.

Before commencing an operation, the surgeon should see that regular and easy breathing is established and maintained. Ether being a less potent remedy, may thus be a safer anesthetic than chloroform, but it must be remembered that it is not entirely without danger. It has a death record as well as chloroform, and as its increased use advances we hear more of its fatal results. To determine the relative value of the two great anesthetics, ether and chloroform, is certainly

very desirable. Deaths have occurred from the use of both, and no doubt will occur again. A mixture of the two was prepared at an early day. The one most thoroughly tested was composed of three parts ether and one part chloroform, and known as the "Vienna Mixture," and was used in Vienna eight thousand times without any fatal result.

Bilroth recommended a mixture composed of one part alcohol added to the above. Another combination recommended is composed of one part alcohol, two parts chloroform, and three parts ether. I consider the virtue of the above mixtures as quite theoretical, but am not inclined to condemn their use, as I have had no experience with them. When I have had difficulty in bringing a patient readily under the influence of ether I have sometimes administered chloroform in addition, and have always found the result favorable.

During the last thirteen years my time has been employed in the service of the Central Pacific Railroad Company, as surgeon-in-chief of their hospital, and consequently the greater portion of my surgical cases have been of a traumatic character, and the most troublesome and difficult to treat have been those of contused and lacerated wounds. These wounds are often complicated with fractures of bones. Such injuries are generally attended by but little loss of blood, because when blood vessels are bruised and torn they do not bleed as when cut with a smooth, sharp instrument, but in all other respects they are much more serious, as they are liable to violent inflammation and sloughing; also cause great constitutional derangement and disturbance of the entire system. A simple lacerated wound may be treated very much the same as an incised wound, the parts being brought together by suture, or adhesive strips, but severe contused and lacerated wounds require a very different treatment. In severe cases, sensibility of the injured parts is frequently be-

numbed and paralyzed, requiring the application of warm and stimulating lotions, and the most thorough drainage provided for. The warm lotions should be continued until after the system recovers fully from nervous shock, which almost always attends such cases, and until after the normal heat of the body returns. When the first symptoms of inflammation appear, then cool, evaporating lotions should be constantly applied. Poultices may also be used to promote healthy suppuration of the wounds. If reaction is not soon established in the injured tissues, gangrene and sloughing will be sure to follow; but it may occur, on the other hand, from excessive inflammation. Alcohol one part, and water three parts, with the addition of a small quantity of tr. opii, make a very good and soothing lotion, and when the discharges become putrid and foul, carbolic acid should be added. More or less gangrene and sloughing may reasonably be expected in all cases. The main object to be kept in view in the primary treatment of such wounds is to save the life of the injured parts, and counteract the tendency to blood poisoning. The wounds should be kept thoroughly drained and disinfected. As an internal remedy to prevent blood poisoning, or to counteract its effects, I consider iron and quinine in combination as the most reliable. No class of wounds in my estimation require more careful and close attention on the part of the surgeon, and when experienced nurses cannot be obtained the surgeon should attend to the dressings, for the most part, himself. This of course is a great tax upon the time of a surgeon, but the life of the patient may often thus depend upon his personal care. Much harm may be caused by the application of cold dressings to contused and lacerated wounds before reaction is established in the capillary circulation of the injured parts, causing large sloughs of the soft tissues, which otherwise might be saved by a more judicious treatment.

Such patients should have plenty of fresh, pure air, light, nutritious food, and stimulants also, when there is much nervous prostration. Opiates may be given with great benefit to assuage pain and allay nervous irritation. This class of cases are generally very tedious, and often not a little perplexing to the attending surgeon; consequently the patient should be early informed that such wounds are quite a long time in getting well. The mind of the patient being kept cheerful and contented will often have much to do with a speedy recovery, whilst on the other hand, if the patient is moody and indulging in unfavorable forebodings, his recovery will be retarded and his cure rendered much more difficult. The patient should be kept as much as possible from all noise and excitement. If the injury is in an arm or leg, the wounded limb should be kept slightly elevated above the body.

The above is a general outline of treatment which I think contains some valuable hints in regard to the management of contused and lacerated wounds. In passing from the consideration and treatment of contused and lacerated wounds, I will now take up the subject of amputations, rendered necessary in consequence of limbs being so badly crushed or injured that there is no possibility of saving them. Such cases are attended almost invariably by very considerable nervous shock, and the surgeon may be in considerable doubt whether to operate before reaction takes place or not. From my observation in such cases I do not hesitate to recommend the operation of amputation as soon as possible. I have repeatedly operated in such cases, and found the pulse as good or better at the close of the operation as it was before commencing. In amputations I approve of Esmarch's bloodless method, as in most cases it is better to save all the blood possible, but more especially when there is much nervous shock and previous loss of blood. In amputations of the limbs the

surgeon should take into consideration the future usefulness of the mutilated member with reference to artificial appliances. In case of a foot being crushed, unless the foot can be amputated anterior to the insertion of the flexors, I believe it better in such cases to amputate the leg at the junction of the lower and middle third, for the reason that the flexors being severed, the extensors having no antagonists, draw the heel upward, extend the foot, and cause the amputated surface to point downward. I am aware that to avoid that difficulty it has been recommended that the tendo-achilles should be severed, thereby affording a partial relief. Of course this advice ignores Chopart's, Symes', and Pirogoff's methods of operating upon the foot, and for the very good reason that the patient can have an artificial limb which will be more useful and give more comfort when a leg is amputated at the junction of the lower and middle third. When an amputation cannot be made at the junction of the lower and middle third of the leg, then every inch should be saved that is possible between that point and the knee joint; but if the joint cannot be saved, then I think it best to go above as far as the junction of the lower and middle third of the femur, and then every inch possible should be saved until the hip joint is reached. In amputations of the extremities I prefer the antero-posterior double flap operations. They are the neatest, and I think the best. It is a mistaken idea that the longer the stump the better it is for the application of an artificial limb.

In case of a crushed or injured hand, if no part of it can be saved, I think the best place for amputation to be two or three inches above the wrist joint, and then save as much as possible between that and the elbow. But if the joint cannot be saved, then go two or three inches above, and after that save as much as possible of the arm until the shoulder

joint is reached. For fingers and toes, I think the joint operations are the best, but not at the expense of their length. This opinion in regard to amputations I derive from those engaged in the manufacture of artificial limbs. The manufacture of artificial appliances during the last twenty years have been brought to a very high degree of perfection, consequently all amputations should be performed with reference to the benefit to be derived from them, and the degree of comfort with which they can be worn. In case of serious accident, it is usual to call the first surgeon that can be found, and it is clearly his duty to promptly respond and take temporary charge of the case. If he is a stranger to the patient, or not his medical adviser, it is as clearly his duty to offer to surrender the case to the family physician, and leave it to the interested parties whether or not his future services be required. Every sentiment of honor and fair dealing should dictate that course.

A common injury met with in railway surgery is that of the brain and spinal cord. In slight cases of concussion of the brain, the symptoms are vertigo, tinnitus aurium, stupefaction and loss of memory, all these being quite temporary. In severe cases, however, we find instant loss of memory, sensation and volition, and vomiting is frequently an accompaniment. The patient remains as if in a sound sleep, but there is no stertorous breathing, as in apoplexy, or as in compression of the brain; the pulse is variable and sometimes intermittent, generally rapid and more feeble than in compression, extremities cold and frequently in a clammy sweat. Pathology as yet has thrown but little light upon this subject, and the only reasonable idea that I can form of the nature of the injury is, that it is caused by the jarring of the nervous substance, eventuating, in severe cases, in a loss of its consistence if not in its positive laceration. When we

come to inquire into the character of the causes of concussion, this view of the case appears quite plausible if not entirely correct. As most cases of concussion of the brain and spinal cord are produced from a direct blow upon the head or back, and when this occurs it is easy to perceive how the brain and spinal cord is affected by the vibratory movements communicated to them through the osseous case with which they are enclosed. The force of the injury, or blow, instead of being expended upon the skull and spinal column, is transmitted to the cerebral substance and spinal cord, which is thus jarred and injured. When the blow is slight, the effect of course will be proportionately mild, the person being stunned, as it were, but when the force is severe and concentrated, the result will be correspondingly injurious. Similar effects may also occur when the concussion by violence is applied indirectly, as when a person falling from a considerable hight, alights upon the feet or knees, or in the sitting posture. In such cases the force of the fall is transmitted along the bones of the extremities and spine to the base of the skull, where it is communicated to the brain very much in the same manner as when the head is struck with a hard substance. As concussion of the brain and spinal cord may exist in various degrees, so the symptoms with which they are characterized may present various shades of difference, depending upon the severity of the injury, consequently it would seem proper to study the symptoms with reference to their diagnostic and therapeutic value. Concussion of the brain and spinal cord may be divided into three stages, viz: first, collapse; second, reaction; and third, inflammation.

The stage of collapse is recognized by symptoms of exhaustion, the system having received a shock, varying from the slightest functional derangement to complete insensibility,

life being almost suspended. In a slight concussion of the brain, there will be a confusion of ideas, slight pallor of countenance, a disposition to yawn, or sigh, and a feeling of nausea at the stomach. This condition usually continues but a short time, aud the injured person will soon resume his self possession and go about his business as though nothing had happened. This is a sample of slight concussion. When the concussion is severe, the symptoms will be much more distinctly marked and will continue for a much longer period of time before reaction will set in. Nervous prostration will be profound, countenance deathly pale, breathing feeble, the pulse soft, fluttering, intermittent, and almost imperceptible; no physical strength, deglutition impossible, the stomach oppressed with nausea, frequently ejecting its contents; the bowels become relaxed, and occasionally involuntary discharges occur; the pupils are usually contracted, or one may be contracted and the other dilated; the mind is prostrated; special sensation is in a state of abeyance; the patient, if aroused at all, is aroused with difficulty, and answers, if spoken to, only in monosyllables. The surface of the body soon becomes cold, and is covered by a clammy perspiration. The condition of the bladder is variable; sometimes the urine has to be drawn off with a catheter; at other times it dribbles away involuntarily. The duration of this stage varies greatly, and, of course, depends upon the severity of the injury. In regard to treatment, the main indication in the stage of collapse is to establish reaction, and the first thing to be done with that object in view, is to place the patient in the recumbent position with the head on a level with the body. Free access of fresh air should be secured, and the patient's face gently fanned. Tight garments of every description should be speedily loosened, and free play given to the respiratory muscles. Cold water may be sprinkled upon the

face and chest; a smelling bottle may be intermittingly applied to the nostrils; also, sinapisms should be applied to the spine, extremities, and precordial regions. Stimulating injections may also be resorted to, and the whole body bathed with spirits and rubbed with warm flannel cloths. As soon as the patient is able to swallow, he may drink a little cold water, or water and brandy, the latter, more especially, when the system is slow in showing symptoms of reaction. In cases where the patient has taken a hearty meal before being injured, spontaneous vomiting gives great relief, and very greatly promotes restoration. As reaction takes place, color succeeds pallor; warmth, coldness, and intelligence a confusion of ideas; the pulse resumes its normal force; the respiration becomes more natural; the stomach is relieved of nausea; the sphincter muscles regain their proper functions; the senses are again revived, and volition gradually restored; but restoration may be either rapid or gradual, temporary or permanent; however, when once fully established, it rarely recedes, but, on the contrary, steadily advances, with a tendency, not infrequently, to over-action. Restoratives, such as ammonia (the salts and not the spirits), should be applied to the nostrils; also, spirits of camphor may be inhaled.

The practice of pouring drinks of any kind into the patient's mouth, before he is able to swallow of his own accord, should not only be avoided but deprecated in decided terms, as the fluids are liable to pass down into the trachea, where even a small quantity might produce fatal suffocation. It is always better to wait until the patient is able to swallow of his own accord and volition, than to attempt to pour anything down his throat when he is in a state of insensibility. Stimulants should be used sparingly during the period of collapse, and when reaction sets in they should be suspended altogether. Good brandy, I think, is the best stimulant, but

when that cannot be obtained, I would give whisky the next preference. In ordinary or mild cases, stimulants are not required, consequently I would advise their use only in severe cases. When reaction takes place, the care and attention of the surgeon should not cease by any means, but on the contrary he should carefully and vigilantly watch every symptom as it appears, in order, if possible, to form a correct opinion of its pathological import and to embrace the earliest moment to counteract any deviation from healthy action. The danger now to be apprehended is inflammation of the brain and spinal cord and their membrane.

Generally, after the patient has recovered his faculties, it is observed that the functions which were suspended are performed with a slight degree of excitement. This, however, need not always be taken as an indication for active interference, as it generally disappears spontaneously in a short time. Diet should be light and non-stimulating, and perfect rest of mind and body enjoined. No visitors should be allowed to see the patient. No noise or loud talking should be permitted, but on the contrary the patient should be isolated as much as possible from all except his attendants, and they should be exceedingly careful not to say or do anything that would in any way ruffle his feelings or excite his mind. *Absolute rest* and *quiet* should be strictly enforced until the crisis is past. In concussion of the brain, the head should be carefully watched, and any pain of which it may be the seat must be looked upon with suspicion. In such cases a brisk purgative may avert a threatened evil; also a dose of tr. aconite and bromide of potass. may be given four or five times a day, and if that does not relieve the symptoms, then it is well to apply a blister to the back of the neck. The same treatment may also be used in cases of inflammation of the spinal cord. As a purgative, I prefer the pil. hydrarg,

followed by a saline cathartic. The pil. hydrarg. may be given in the evening and a saline draft administered the next morning. When the third stage appears, it is that of traumatic inflammation. The period of its development is quite variable. It may take place in a few days, but instances occur in which it does not manifest itself for weeks and even months after the injury. In the former case, the disease manifests itself clearly and unmistakably; in the latter, it is often latent, its development being slow and insidious, and its progress consequently often considerable before its true character is discovered. These cases are sub-acute and require much care and skill in treatment, and in many instances it will be difficult to disabuse the mind of the patient of the idea that his medical adviser is not exaggerating the importance and danger of his case. Acute traumatic inflammation as it usually manifests itself, is characterized by high febrile disturbance, intolerance of light and noise, cephalalgia, suffusion of the eyes, flushed countenance, excessive thirst and restlessness, hot, dry skin, hurried respiration, heavily coated tongue, loss of appetite, constipation of the bowels, scanty and high colored urine, and a hard and frequent pulse.

Delirium generally commences at an early period. The carotid arteries often beat with unusual force, and as the disease advances the patient is liable to be seized with spasms, and finally coma and paralysis, which generally soon closes the scene in the death of the patient. On dissection of the brain and its membranes, they are found to be in a state of disease, portions of the former being softened and apparently mixed with blood and pus, and the latter, as it were, incrusted with patches of lymph. Serum is also found in considerable quantity at the base of the brain and in the ventricles. The treatment of this variety of inflammation should

be early and as vigorous as possible. If the patient is of a plethoric habit, blood should be freely abstracted from the arm or temples; the bowels should be thoroughly moved with a mercurial cathartic, aided by an enema; the head should be kept elevated and ice applied, and light and noise should be strictly excluded from his apartments.

But little nourishment should be allowed, and that little of a light and bland character. Drinks should be cold water, acidulated with lemon, if relished better than plain water. Some authors recommend the use of mercurials until decided ptyalism is produced, but I am satisfied that the general verdict of the medical profession of to-day would not be in favor of it. Instead of relying upon mercurials, I have reposed my chief confidence upon the use of aconite, brom. potass and iod. potass, and an occasional dose of pil. hydrarg., followed by a saline draft and counter-irritants.

Sprains, dislocations and fractured bones are also very frequently met with in railway surgery. In the former injury the proper application of lotions and bandages, with rest, is the best treatment. In the two latter injuries, reductions, appliances that secure perfect immobility of the injured parts and rest, are the three principal indications to be met in their management, the special treatment to be modified according to circumstances in each individual case.

In this report I have endeavored to be as brief as possible, but at the same time to go over most of the principal ground of my subject. To do justice and give ample scope, however, to the subject under consideration, would require a more able pen than mine, and much more space than would be proper for an occasion like this.

REPORT ON MEDICAL EDUCATION.

BY A. H. PRATT, M. D., CHAIRMAN.

The average man gives himself up to the interest of self and the interest of the general public. As medical men, we have in addition the interest of the profession in general. In the subject of medical education the three phases of interest are involved. Upon this subject of late years much interest has been manifested, and much ink shed, and widely divergent the views offered.

Between Dr. Yandell, who thinks that no preliminary education to speak of is necessary, and those who write as though an aspirant to medical study should be a walking encyclopedia of general knowledge, there is almost an impassible barrier. The Doctor advocates almost a divorcement of clinical and didactic instruction, and the complete subordination of the latter to the former. As far as I can learn, he stands alone in the constellation of American teachers.

In glancing over the literature of our subject, there is manifest too great a tendency to disparage the American system of instruction; too great a tendency to laud the system of the old world, and to urge its engraftment upon our soil to the exclusion of our system of which we are children.

In the first place I am an American. I believe firmly in America and her institutions. I believe we are not only working out a new system of politics, but also a new system

of free schools, free speech, free press, free manhood, and last but not least, a new system of medical education. I believe that however much there may be of good in the system of the old countries, that system is not now adapted to the genius of this nation or its civilization.

The German mind is essentially a scientific one—a patient, plodding, much-enduring people. At the head of the scientific world to-day, their ideas are sown abroad and leave their impress upon the thoughts and writings of all nations. All honor to the Germans. But the genius of American mind leans decidedly to the practical—to the utilitarian side of life.

To the average American it is useless to talk of science in the abstract, but show him where a scientific principle may be practically utilized and he will not only master the principle involved, but will also solve the problem of its practical utilization. Is this strange? Let us inquire. We are one hundred years old. The human mind is developmental. Our ancestry, in the main, came from the middle and lower classes of the old country. Their children were born in log cabins and faced stern, unproductive nature on life's very threshold. Their energies were directed to utilitarian problems only. No libraries, no museums, no traditions, no antiquities, nothing to suggest the scientific, but the practical suggested by inheritance, their necessities, their hopes and their fears. Was it not then to be expected that the bias of national mind should, under the circumstances, lean to the practical?

And why should the laws of human development be with us the exception? Is it not true that the order of development is first of the arts and then of the sciences? This truth granted in general, is it not to be applied to medicine? If so, may it not be said that medical education here is in the order of legitimate development?

Here lies the kernel of the subject; and a proposition here advanced is that our system is and has been adapted to our national, social and scientific development. It is a flexible system, and bends and is bending to our needs and standards. Is the standard of instruction and graduation the same to-day as it was when some of our now gray heads sat upon the lecture bench, or trembled at the portals of the green room? Was the range of studies of their day as wide as the range of to-day?

But why decry our system for making it furnish what we ourselves make the needs of our system? How many here love science for science sake? How many of you study the science of Ziemssen rather than hard kernels of therapeutical facts for daily use? How many endeavor, by voice and example, to elevate the scientific basis of the communities in which you severally reside? How many hold up to your students the science of Germany rather than the practical tendency of America? How many of you hold up in favorable contrast the success of the European graduate at the expense of the graduates of the system you profess to condemn? And again, why smirch our own characters by blackening the character of that system whose children we are? The conclusion is inevitable that if we are ashamed of our system, we must also be ashamed of ourselves.

Boerhave left as the total of medical practice and truth this saying: "keep the head cool, the feet warm and the bowels open." Were he living to-day, think you his legacy to humanity would be the same? Or think you his European *confreres* of to-day would subscribe to the same? If, then, time was a necessary element in the development of Europe, why should it not also be of America? In the reign of the good Queen Anne of England, a famous prescription for epilepsy was made of the flesh of the anti-epileptive crow, drachms

three; viper powder and native cinnamon of each a drachm; the whole taken in two doses. Of late years the profession there seems to have neglected this popular and time-honored prescription.

I do not think now that any one will say that I am un-American in my views, nor do I wish to offer any strictures on the system in vogue in the old world. With all our faults we are the therapeutic and surgical peers of any nation, and look to time remedying whatever faults under which we may now be laboring. While this is true, it nevertheless is a fact that our system needs pruning and cultivation.

First, we need endowed medical colleges that will be independent of the number of their classes for their yearly existence. How seldom it is that our rich philanthropists remember a medical college. All other charities and institutions are fostered by State and individual endowment, but medical education is a plant left to take care of itself. The public often condemn the product of our schools, but resist all efforts to aid the factors that produce the product.

Second, we have too many schools. The law of trade rules here as elsewhere, and too great a supply cheapens the market. Consider for a moment their multiplication. Ohio leads off with something like a dozen, and seems willing to furnish all our doctors as well as Presidents. It may be that as one college can furnish but so many titles, more were necessary in order that no doctor who was both able and willing to accept a professorship should be slighted. And herein may lie the "long felt want," so modestly expressed in each new college prospectus. I do not wish to judge Ohio harshly, for too many of our cities, Chicago included, seems to imagine that it is a young Ohio in itself. This same facility of organization is also extended to spurious colleges. Such a thing as scrutiny by the body politic of

the aims and designs of the proposed incorporating body is unknown. And while the State may require a license to practice, it grants indiscriminately the right to teach and license. Who ever heard of an application for a charter to found a medical school being refused? The wrong does not lie in our system of education, but goes deeper and involves public sentiment, which is ever tender on the subject of medicine or any of its cognate branches.

Third, the duration of study must be lengthened more generally than is now the case. The wider a river the longer is the time necessary to cross it; and as medicine widens in its scope so must the time to compass it be increased. The ranks of the profession are a unit here, but the colleges either cannot or will not change their curriculum. If the latter be true, the fault lies with the colleges; but if the former, the remedy lies with the profession. Let physicians encourage their students to avoid two-term colleges, whether in New York or Kansas City. Also let them educate the public to do honor to the graduates of long term schools.

Fourth, the most pressing demand for change should be in the material allowed to matriculate. The profession is essentially a scientific one, and is expected to stand before the public honorable in its scientific attainments. How can this be done unless there is a standard of qualification for its commencement as well as completion? Without wishing to offend, I have no hesitation in saying that in more than three-fourths of our medical colleges, any one can matriculate who can write his own name, and no questions asked. Students are graduated to whom a decimal fraction is a *pons asinorum*, and who are as familiar with grammar as Adam may have been with astronomy. Some five years since, over four hundred graduates issued from the portals of the three New York City colleges. The total of all the rejections

could be counted on one's fingers with a finger to spare. Such thorough teaching is remarkable. Nor have I evidence that teaching is less remarkable in Chicago, Cincinnati, Louisville, or in any of our aspiring medical centers, than it is in New York City. In wide contrast to such results are those obtained by the University of Virginia, where last year but ten graduated out of a class of forty applicants.

Since my appointment as Chairman of the Committee of Medical Education, I have carefully read whatever has come in my way relating to the subject--essays, reports and editorials--and I have become convinced that reform must come from sources outside of our so-called medical centers. There the large schools are jealous of their classes and revenues, and are afraid of each other. They point to their large classes and talk of higher medical education, leaving to schools of lesser numerical pretensions the initiative of the work. 'Tis true that New York and Philadelphia have now their polyclinic, post-graduate courses, and private instructors, but they are so hedged in by fee graspers that they are become a sort of medical Niagara, because of multiplied and extravagant charges.

Gentlemen, I trust I have offended no one --least of all a metropolitan graduate, for I am such an one myself. In conclusion, let me again say that I am a believer in our schools and system. They filled their mission in the past and will do so in the future. Changes have come and more are coming, to place them abreast of the age. The profession is aroused and the public is wakening, and demands made sufficiently loud must be affirmatively answered. Carl Schroeder says, to study gynæcology go to America. The works of our writers Europe accepts as authority, and why may not the time come when American schools, like American watches, shall be standard throughout the world.

REPORT ON OTOLOGY.

BY A. BARKAN, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE STATE MEDICAL SOCIETY: It may frequently be observed in a family consisting of many children, that all are not equally beloved by their parents. Sometimes the first-born and the last-born are the favored ones; sometimes the beauty or talent of another child draws undue homage from the proud parental heart, whilst other worthy members of the family who gather around the domestic hearth, must perforce take a place in the background and make themselves comfortable as best they can. A somewhat similar state of affairs is, it appears to me, going on in the family circle of the dear old woman "Ars Medica," who, unlike others of her sex, becomes the more fertile the older she grows. Year after year her numerous children assemble before her to report the progress they have made in their special branches—surgery, internal medicine, gynæcology, hygiene, and others. They are listened to with pride and approbation; but of the two gracious sisters, ophthalmology and otology, who should advance hand in hand to make their reports, ophthalmology is the one who pre-eminently takes the lead, and her sister otology has been too much treated as the Cinderella of the family, her merits not sufficiently appreciated, and now she demands her proper place and a kindly hearing. Her report this year will be

brief compared to the excellent and exhaustive one made by her ophthalmic sister last year—still I trust it will contain some points of interest to you, my worthy *confreres*, and that you will give otology all due attention, and thus learn, in a small degree, the progress which has been going on during the last few years in the diagnosis and treatment of aural diseases. Certainly one of the most important advances made in this field is the fact that general practitioners are commencing to appreciate the importance of prompt and efficacious treatment of aural affections. It is astonishing that this should not have been done long ago, for the relationship existing between affections of the ear and general diseases is as frequent as it is important.

It is to be presumed that most of the practitioners present have at all times one or more cases of scarlatina under treatment, and that with zealous care they watch the course of the disease, but I fear they are rather lax in regard to attention to one of its most frequent complications, to acute purulent catarrh of the middle ear, although it produces not only severe suffering, but threatens quick and extensive destruction of the sense of hearing. In any other part of the body an abscess would receive prompt surgical treatment, but one in the middle ear is unfortunately too often allowed to run its course, and in consequence the results are extensive perforations of the drum-head, necrosis, loss of one or several of the ossicles of hearing, and likewise considerable impairment of hearing, if not entire deafness, evils which might have been avoided by a timely paracentesis of the drum-head and judicious treatment, and many sufferers have been preserved from becoming burdens to themselves and to society.

In a treatise by Burckharot Merian, on scarlet fever, in relation to the ear, this important subject has been treated very ably. During two epidemics of scarlet fever, he ob-

served in the first that inflammation of the middle ear occurred in 33.3 per cent., in the second 22.2 per cent. He is of opinion that severe affections of the middle ear, in scarlet fever, are brought about by diphtheria, arising from the throat and passing along the eustachian tube into the tympanic cavity. Pain in the ear occurs in a large majority of cases during the stage of desquamation after the elevations of temperature have subsided. At first the pain occurs only in attacks, but later it assumes a neuralgic character and a considerable degree of deafness rapidly develops itself. Swelling of the gland in the vicinity of the ear is seldom absent. When perforation of the drum-head takes place the fever and the soporose condition diminish. The disease differs from the usual middle ear inflammation, in the rapidity with which it produces extensive destruction of the drum-head. The milder affections of the middle ear in scarlet fever are not diphtheritic in character. The prognosis of diphtheritic affections of the middle ear is less favorable the longer the disease remains without treatment. The treatment used by Burckharot Merian consists in cauterization of the diphtheritic patches in the pharynx and naso-laryngeal cavity, with ten per cent. salycilic alcohol and application of ice bags. If the fever continues, pain returns and the mastoid process is tender on pressure, paracentesis of the drum-head must be made, followed by use of the air-douche. Should suppuration set in, syringe with a five per cent. solution of bicarb. of potass. Any diphtheritic membrane must be removed and the surface impregnated with salycilic alcohol. By this treatment a speedy cure will be obtained, with subsequent closure of the drum-head.

During the course of and subsequent to an attack of measles, and frequently after typhoid and recurrent fevers, purulent catarrh of the middle ear occurs. During an epi-

demic of typhus in Berlin, Hartmann found, of one hundred and twenty patients examined, forty-two cases affected with affections of the auditory organ. He observed that in nearly every case of typhus exanthematicus, general hyperæmia of of the head was accompanied by marked hyperæmia and swelling of the naso-pharyngeal mucous membrane, and it appears that congestion of the auditory organ forms an essential part of the general congestion of the head. If it persists after convalescence from general disease, exudation may occur under different forms, either most pronounced in the drum cavity, in the tubes, or in the labyrinth.

A frequent occurrence of more or less acute inflammation of the middle ear, during recurrent fever, has also been observed. The prognosis of these cases was not unfavorable if properly treated. Frænkel has proved that the naso-pharyngeal region and the ear are often affected by consumption. He observed in some very carefully prepared specimens taken from post-mortem examinations of fifty consumptives, that twenty-nine were affected by morbid changes in the naso-pharyngeal region or in the auditory organs. The disastrous extent of the disturbances caused by epidemic cerebro-spinal meningitis to hearing and to equilibrium, is ably shown in a book recently written by Prof. Moos, of Heidelberg. He found that of sixty-four cases examined by him during six years, sixty per cent. were deaf mutes, thirty-two per cent. were deaf without mutism, and seven per cent. permanently hard of hearing, while only one patient escaped without any subsequent affection of the organs of hearing. He is of opinion that in the majority of those cases, the labyrinthine trouble was due to a neuritis descendens; i. e. a slow encroachment of the inflammation from the interior of the cranium into the labyrinth, along the perineural vessels of the auditory nerve.

Dr. Pierce contributed to the International Medical Congress, held in London, in 1881, one of the ablest papers in the section of diseases of the ear, on the action of syphilis on the ear. He stated that though the effects of congenital and acquired syphilis on the ear are less observed than their effects on the eyes, teeth and skin, they nevertheless frequently manifest themselves in a variety of forms, as primary sores of the ear, but more commonly as secondary squamous, pustular and papular eruptions. The following observations may be considered as a summary of the characteristics of congenital and acquired syphilitic affections of the ear:

1—An extreme degree of deafness manifested at an early stage of the disease.

2—Rapidity of progress and absence of pain.

3—Early and extreme loss of hearing of the tuning fork over the vertex.

4—Frequent imperviousness of both eustachian tubes.

5—Constancy of the tinnitus of a hissing kind.

6—Frequency of simultaneous inner-ear symptoms.

7—Improvement of pre-existing eye affection.

8—More decided an affection of the naso-pharynx than of catarrhal ear disease:

9—Less complete recovery than in simple catarrh.

Although doubtless the attention of many general practitioners is often directed to the connection existing between syphilis and the organs of hearing, yet few, perhaps, are aware of the observations published on the complications of serious aural affections causing, mostly, bilateral deafness from mumps.

Permit me to give a short history of a case mentioned by Professor Knapp. He was consulted by a young lady of New York, of about twenty-five years of age, who had never

had any ear disease, but had enjoyed perfect health and hearing until six years previously, when, in the Autumn, she suffered from an acute attack of mumps, attended with immense swellings on both sides, lasting two weeks. On the sixth day the hearing was still good, on the seventh weak, on the eighth completely lost, and has remained so ever since. She complained of headache and earache—there was no discharge. On the seventh and following days she suffered from great dizziness which lasted for months, and, in fact, it had never completely disappeared, for frequently now she feels dizzy and inclined to fall over. No tinnitus aurium. The patient was healthy, intelligent and well-developed, and during the six years of total deafness has not lost any part of her power of speech. She was unable to hear a sound either by air or bone conduction. Words spoken in her ears, through the hearing tube or otherwise, produced an unpleasant sensation, but not that of sound. A large tuning fork placed on the tragus, and with it stopping the air canal, was felt, not heard—the same result took place when placed on different parts of the skull. Physical examination of the ears, eustachian tubes and naso-pharynx revealed perfect normal condition. Inflation, even by Valsalva's experiment, was easy. Knapp's opinion is that the total deafness, its rapid, almost sudden occurrence, with absence of marked symptoms of middle ear disease, the dizziness and disturbance of equilibrium long after the attack had ceased, are sufficient evidences that the lesion in such cases is labyrinthine, not tympanic. He thinks that the disease does not continue directly through the auditory canal and tympanic cavity, nor through the canal of the facial nerve, but that the total sudden deafness in mumps, without middle ear affection, is of metastatic nature, similar to orchitis and other complaints noticed during the same disease. Two cases on this important topic

have been published, and further observations on the part of general practitioners and specialists are very desirable.

Aural diseases, consequent upon malaria, are frequently observed in malarial countries, and present themselves under the clinical picture of acute inflammation of the middle ear. Only ten years ago, Weberkiel was the first to describe the affection, which he called otitis intermittens. There are usually all the objective symptoms of acute catarrhal otitis present—fullness in the head, noises in the ear, and pain in both. The peculiarity of the disease consists, according to this author, in its intermittent character. Regularly, at the same hour, the pain would begin. It would increase in intensity for a certain length of time, then subside after a certain period, and like the pain, so would all other symptoms, subjective and objective, show free intermissions at first, and marked remissions during the later period of the disease. In some cases the pain was ushered in by a slight chill and terminated with profuse perspiration. On the third or fourth day the membrana tympani was perforated, and a discharge from the ear set in, without relief to the patient. The ordinary treatment for catarrhal otitis proved of no avail, the disease lasting many weeks and months, and ultimately affecting the mastoid cells. The use of quinine, however, arrested it at once, and achieved a speedy cure. Dr. Weberkiel makes the following remarks concerning the frequency of this disease: "Since I first described otitis intermittens, I have observed a great many cases of acute aural inflammation belonging to this class, which, when treated as otitis intermittens, were so speedily cured that I have no hesitation in saying that a great number of cases of acute otitis, especially those occurring in the Spring and Autumn, are caused by malarial agencies." Dr. Hotz, of Chicago, who recently published several cases of this kind, corroborates Dr. Weberkiel's pre-

vious observations. He agrees with Dr. Roosa, that topical applications have a bad effect, and produce perceptible aggravation of the inflammation, but that the condition of the patient improved as soon as the local treatment was abandoned and quinine resorted to. Respecting the administration of quinine, he advises small, frequent doses, and considers them preferable to the large doses usually administered for malarial fevers. The remedy should be continued for some time after the apparent recovery of the patient, in order to insure a permanent cure. He usually gives one or two grains every one or two hours, with equal parts of Dover's powder.

With respect to the effect of quinine on the ear, it is perhaps well to mention that Knapp, at the last International Congress in London, called attention to observations recently published in America, touching blindness and deafness caused by large doses of quinine (forty to fifty grains, even more, pro die). The deafness is total, but generally lasts only one day. The blindness is likewise total, but recovery very slow and incomplete, a marked and lasting contraction of the visual field being one of its essential features. Dr. Knapp tested the hearing after recovery, and found it perfect in every respect—in acuteness, perception of high, middle, and low tones, and of timbre. The middle ear, likewise membrana tympani, were normal during the attack. The extensive pallor of the optic disc, with almost invisible blood vessels, which at the outset of the poisonous effect, and in grave cases remaining permanent, suggests a similar condition of ischaemia n the cochlea. During the lengthy discussion which followed the communication of the effect of quinine on the ear, it was stated that total deafness from quinine had never been observed, but a long continued use of it would produce hardness of hearing, from nervous exhaustion. Its long continued use, however, is recommended by Charcot and others, on ac-

count of its beneficial effect in vertigo, noises, etc. It appears, indeed, that the treatment of aural vertigo is a more satisfactorily settled question than the cause and nature of Meniere's disease. This affection includes all those cases in which a sensation of vertigo is caused by abnormal irritation of the nervous terminal apparatus in the semi-circular canals. Hughlings Jackson gives an interesting account of aural vertigo in a very instructive lecture published in the *Lancet*, in 1880. He differentiates it from epileptic vertigo, which arises as follows: A patient who has a mild attack of epilepsy, or beginning of a grave one, feels as if everything around him were moving, or as if he were moving about. In aural vertigo everything around him seems moving suddenly from side to side, or revolving on an axis. Uncertain gait and aggravation after moving the head—locomotor symptoms—sudden pallor, nausea, vomiting, intense depression, and headache, are vital manifestations. In every case the ear "is the fons et origo mali." As to the treatment, Guye, of Amsterdam, also states that amongst internal remedies quinine deserves the most reliance, inasmuch as it often lengthens the interval of freedom from attacks during the course of its exhibition; it likewise often acts paradoxically in chronic affections of the ear, by removing entirely the previous tinnitus, whilst increasing temporarily the deafness during the course of its exhibition.

Short and imperfect as is this sketch, Mr. President, it shows that aural complications, usually of a serious nature, are met with by the general practitioner in many cases of scarlatina, measles, variola, consumption, cerebro-spinal meningitis, malaria, pharyngitis, rhinitis, congenital and acquired syphilis and in typhus and recurrent fevers. Yet, and it seems strange, that rarely is the importance of prompt treatment appreciated; too often may the remark be heard from

the medical attendant whose attention has been called to the purulent discharge from the patient's ears during convalescence, "that the trouble is of a slight nature, and to let the ear alone, for all the bad stuff is coming out that way;" so the mischief goes on, hearing passes away, and the army of deaf mutes is increased, when in ninety-five out of a hundred cases recovery might be ensured by timely treatment. Considering the great importance of these cases and of the grave responsibility incurred by all members of the profession, I cannot refrain from citing the words of Frænkel, the able general pathologist of Hamburg, on this subject:

"The danger of suppuration of the ear to the health and life of the patient, has long been well recognized by physicians, although even now the opinion may still be encountered that otorrhœa must be regarded as a *noli me tangere*, which it is unwise to suppress forcibly. Whoever has had an opportunity of observing, on the dissecting table, the sequelæ of chronic suppuration of the middle ear, will be easily convinced of the falsity of such a view."

It is pre-eminently Lebert's privilege to have demonstrated that otitis interna has shown itself as a frequent complication and cause of cerebral suppuration. A compilation of the communications in this department of pathology during the last decade has furnished Frænkel with twenty-one cases in which cerebral abscesses occurred consequent upon purulent otitis media. Frænkel had, during the short period of one year, seen five cases in that category. Amongst other complications met with in the course of chronic purulent otitis media, I will refer only to basilar meningitis, sinus phlebitis and thrombosis, caries and necrosis of the temporal bone, erosions of the intenal carotid artery. This is sufficient to demonstrate that otorrhea is liable, owing to complications which may arise in its course, to lead to death. We deem it,

therefore, our duty to call attention to the great danger of neglecting such cases, and to urge the earliest possible treatment and cure of the purulent discharge. This appears to me the keystone of the treatment of all affections of the ear, especially the middle ear: early treatment during and subsequent to the acute stage of the trouble. Let attention be thoroughly aroused to the frequent aural complications met by general practitioners, and of the necessity of examination of the ear with reflector and speculum.

Here, if anywhere in the field of therapeutics, the adage "*vis dat qui cito dat*" may be applied. You will agree with me that there is such a thing as therapeutics in ear diseases, if you will consider the effect of paracentesis of the drum-head, trephining of the mastoid process, removal of osseous and polypoid growths, by chisel, snare and galvano-cautery. The generally successful treatment in every neglected case of chronic otorrhea is by cleanliness, astringent and disinfectant solutions and powders; above all, insufflations of boracic acid powder, nitrate of silver in strong solution, alum and alcohol. The good results attained in cases of simple acute chronic catarrh of the middle ear by judicious inflation, injection of astringents and dissolving solutions into the tympanum, the use of cotton pellets and other forms of artificial drum-head in cases of perforation of that membrane, the speedy cure of otomycosis by parasiticides, offer a fruitful field to the practitioner as well as to the specialist. During the last twenty years, otology has divested itself of the armor of empiricism that covered and weighed it down. Its physiology, pathology and therapeutics have been developed, to a great extent, through the work done in this country by such eminent men as Roosa, Knapp, Buck, Burnett, Turnbull, and others. I must forego, unwillingly, Mr. President, the pleasure of pointing out more fully the progress that aural therapeutics

has made of late years; this important task must belong to next year's report. Let me however hope that these observations will accomplish the double purpose for which they were intended, that of interesting the general practitioner in aural diseases by pointing out some of the many links that connect aural affections with general diseases, and of securing in the coming reports of the State Medical Society a safe, though modest, homestead for the science of otology.

REPORT OF THE COMMITTEE ON MEDICAL LEGISLATION.

BY HENRY S. ORME, M. D., CHAIRMAN.

MR. PRESIDENT, AND MEMBERS OF THE STATE MEDICAL SOCIETY: As Chairman of your Committee on Medical Legislation, it was my intention to have embodied in the following report a synopsis of the medical laws of the several States; but, having failed to obtain them, I am reluctantly compelled to submit my report minus the valuable information which they would doubtless afford. I would suggest, however, that such a synopsis would be exceedingly valuable in aiding any committee that may hereafter be appointed to frame such a law as will best meet the wants of the profession and guard the interests of the public.

Your Committee, in considering the medical law now in force, being aware of the violent opposition which has arisen to it in many quarters, and of the strenuous efforts that would be made to accomplish its repeal or amendment, decided that it would be better not to make any demonstration before the Legislature, but to let the law remain as it is, believing it safer to "bear the ills we have than fly to those we wot not of." There is therefore no *direct* legislative action to report, but certain efforts on the part of members of your Committee to prevent adverse legislation, will be mentioned in supplementary reports by Drs. Oatman and De Witt.

Dr. A. M. Wilder, who was appointed to co-operate with the Committee on the subject of color blindness, knowing

also the opposition to medical legislation, refrained from presenting to the Legislature a bill which he had carefully prepared on this subject, and holds the same over for future action.

Owing to the great distance of my residence from the Capital, I was unable to attend the Legislature in person, but I am pleased to say that other members of the Committee more conveniently located, did attend, and together with the active assistance and hearty co-operation of Drs. Knight, Crumpton, Briceland, and others friendly to the medical profession, Members of the Legislature, carefully noted the proceedings, and by their unwearied vigilance and intelligent representations, thwarted every movement of the enemy, who were numerous and influential, and, despite their persistent efforts, the law remains intact. It is admitted on all sides that the law is by no means perfect, but what law is perfect? At all events, the fact that the law is not so is not a valid reason for objecting, as too many of the profession now do, to any legislation whatever. The motto of the non-interventionists is, "come one, come all," and let the evils complained of cure themselves by the operation of antagonistic forces, or by the natural law of supply and demand, forgetting that society, being artificial, *must* have laws to regulate its conditions and requirements, if healthy progress is to be made and anarchy avoided. The only reason the *true* physician can have for opposing the present law is, that it does not accomplish all he desires to obtain, while the quack and impostor will fight it to the bitter end, because it is a stumbling block in their path, a check upon their unprincipled practices, and a bar to their unholy gains. These harpies would be left free to prey upon the public at will; and whenever an effort is made to restrain them in the interest of humanity, the cry is raised that the liberty of the citizen is being restricted; that

the Legislature is appealed to in the interests of a class; and that the people have a right to employ whom they please as their medical advisers.

Medical science, by reason of its wide scope and varied branches, is peculiarly obnoxious to the attacks of the ignorant, the superstitious and the vicious, who, under its cloak, carry desolation and death into the hearts and homes of those whose circumstances of poverty or ignorance appeal most strongly to our better natures for sympathy and aid.

A properly constructed medical law should not only provide for the protection of the public from the evils of malpractice by individuals, but should effectually bar the entrance to the practice of medicine against the multitude of ignorant, unqualified and utterly sordid charlatans who, like "fools rush in where angels fear to tread." And this protection is due as well to the properly qualified practitioner as to the public, for both alike must suffer injury if unprincipled quacks and imposters are permitted to prey upon the ignorance and credulity of the masses of the people.

The statutes already provide penalties for certain classes of malpractice therein defined, but it remains for the several States, by legislative enactment, effectually to prevent dishonest or ignorant practice by whatever high-sounding title it may be designated, from exercising its baneful influence upon those whose inexperience, weakness or superstition renders them an easy prey to its machinations.

The question then arises, what is the best mode of procedure in order to accomplish the desired result?

If, after timely warning, the voice of the people at large is not raised for their own protection, it then becomes the duty of the body who, next to the public, are most nearly interested, to make themselves heard in tones that have no uncertain sound.

The medical profession cannot claim, as unfortunately the public might, that they do not understand the necessity for action, and therefore must wait for more light upon the subject. The profession not only understand the subject, but also feel the evil effects of the non-interference policy which has too long prevailed; but notwithstanding this, they manifest so great a degree of apathy in a matter which concerns so nearly their own best interests, that it amounts to a serious stumbling-block in the path of progress which has yet to be removed or surmounted. To such as are indifferent we would say, if not for your own sake, at least in the interest of humanity and the ultimate triumph of science over ignorance and prejudice, lend us your efficient aid. Those who are not for us are virtually against us, and cannot complain if they are classed among those who practice medicine only from selfish and sordid motives.

If the regular practitioners, who practice their profession from a love of science and a desire to relieve suffering humanity, would labor for improved legislation with as much zeal and unanimity as the selfish and sordid strive against it, our country would soon cease to be the target for such epithets as "quack-ridden" as, under the influence of the lately passed bill to prevent adulteration, she will soon be relieved from the stigma of being the "home of adulteration."

It is a weak argument to say that because you cannot thoroughly enforce any law that will prevent quacks from practicing you should therefore let them alone, for, by parity of reasoning, you might as well decline to legislate against any form of crime. At least something may be gained by the passage of a law whose provisions have been carefully considered in the light of experience, and it is better to have some law, even though it be defective in some

points. No human institution ever was or ever will be infallible, and no human law ever was or will be perfect. All we can do is to approximate, as nearly as possible, to that standard, and this we can do by progressive action only, adding to or taking away from the structure, as experience may dictate, until the result we aim to achieve is accomplished.

It is of course impossible to exhaust the consideration of a subject so comprehensive within the limit of a committee report. There are too many points, both of primary and secondary importance, to be considered, and the area of inquiry should therefore be left to a properly constituted authority, and confining the question, for practical purposes, within the State of California; we are of the opinion that such authority should be vested in a Standing Committee, located in or near the Capitol of the State, for there the facilities for immediate legislative action must be greatest.

The province of such a committee should be to promote the wider dissemination of our ideas by pen and voice, through the press, upon the lecture platform, and by any and all honorable means open to us, whereby we may influence and educate public opinion, inviting, also, the co-operation of all the county societies, and when the whole subject has been thoroughly discussed, to draft a Bill and present it first to the local and State societies for their endorsement and approval, and then to the Legislature, and by all proper and legitimate means urge its passage.

All real progress in social reform must necessarily be gradual, but this should not deter us from advancing when the way is open and the welfare of humanity is the incentive.

We are also of the opinion that any new legislation on medical matters would be greatly facilitated if the local medical societies would exert their influence to secure the

election of some of their members to the State Legislature, upon the plea of a sacred duty to the public; even a small representation of the profession is better than none at all, as they could not fail to leave upon the statute books of the State salutary evidences of their trained knowledge and appreciation of the necessity of careful legislation in medical affairs.

In an address delivered before this Society by the writer, and published in the transactions of 1878–79, the following quotation is apropos to this branch of the subject: "The physicians of every State, by virtue of their intelligence and their natural guardianship of the public health, are rightly entitled to a fair representation of their profession in all legislative and municipal bodies, and the people at large would be the gainer if their experience and influence could be utilized in the framing of laws. As an almost unvarying rule, the medical profession is free from the taint of personal political ambition. No right-minded physician of respectable practice can accept office without great personal sacrifice. Hence it is that a proposition to do so must be presented for his consideration as purely upon the high ground of public duty.

"The local medical societies ought to exert their influence to have certain of their members elected to the State Legislature. If such nominations were made regardless of party or political affiliations, and it came to be understood that the entire medical profession was pledged to exert its personal influence in their support, there would be little doubt of the candidates' election. Political parties would be swift to recognize such a potent element of influence. Even a meager representation of the profession is better than none. By courtesy they are placed on committees pertaining to the public health, hospitals, asylums, infirmaries, etc., and in

every instance under present recollection where physicians have filled such positions, they have left their impress for good upon the statute books of the State, as a perpetual monument to their judgment and high appreciation of the great principles of State medicine.

"Hence it is that I venture to suggest as a matter of right on the part of the profession and of the people at large, whose sanitary advisers they are, and as a matter of duty on the part of the physicians who consent to accept the task, that an organized effort be made on the part of medical societies and of this State Society, to send more physicians to the State Legislature and to the Congress of the United States."

The profession in the United States numbered in 1880 no less than eighty-five thousand six hundred and seventy-one individuals, and it is not too much to say that they are well entitled to be directly and fully represented in the legislative bodies of the State and of the nation, and that it would undoubtedly prove to be of great value to the profession to be thus represented.

Among the minor points already referred to, the question of recognition of homœopaths and eclectics is, perhaps, the most prominent. They are, in fact, already recognized by law, and as to whether they should only further be required to show the qualification of a full and proper education, belongs to the larger question of medical schools in general.

Attention should also, I think, be directed to the question of expert testimony in Courts of law, especially as regards the application of the word and in relation to the fees in remuneration of such testimony.

Nor should the question of practice by druggists be overlooked. They, as a body, were antagonistic to the present medical law, and it is difficult if not impossible to discover any *creditable* ground for their opposition. On the contrary

they appear to have been actuated by sordid feelings. The physician and pharmacist have each his appropriate and legitimate sphere of duty, and neither should encroach upon the domain of the other.

Our present law is defective in this: that, while it prescribes a penalty for the violation of its provisions, it offers no inducement to those who may possess a knowledge of its infraction to inform against the offender. In Oregon, whose law is similar to ours, a portion of the fine imposed upon violators of the law is given to the informer, thus making it an object for those who may be cognizant of illegal acts, to bring the offenders to justice.

There is no lack of material already existing for a standing committee to examine and discuss. The laws of other States, either passed or proposed, and the periodical literature and reports pertaining to the profession at large, all furnish ideas more or less elaborately expounded, the careful consideration and digestion of which ought to prove of the utmost value in preparing any new measure that may be brought forward in medical legislation.

In the meantime let us guard carefully from the tampering of dishonest parties with the law we have; defective though it be, it is better than none, and is at least a partial protection to the public and some check upon those who, without medical education or qualification, and regardless of the health or life of their victims, by their unblushing assumption of medical skill, bring disgrace and distrust upon an honorable profession. In the pursuit of an object so laudable as the benefiting of humanity by the utter extinction of charlatanism and quackery, we can afford to watch and wait, remembering that

> "No rogue e'er felt the halter draw
> With good opinion of the law,"

and never cease our efforts until the last villain who by his

ignorance, rascality, or greed of gain, places human health or life in jeopardy, is dragged forth into the light of justice and placed in the pillory of public contempt and detestation, or safely ensconced behind the prison bars, where his abominable practices can no longer endanger the peace and well being of the community.

We may not be able to accomplish this immediately—"Rome was not built in a day"—but we can so regulate our efforts as to continually tend to that result. Medical legislation, to be effective, must be thorough and comprehensive.

The importance and respectability of the profession must be recognized and protected. Each school of medicine should control and direct its own graduates and practitioners, and the organization of State and county medical societies should be made compulsory. Each county medical society should elect a board of censors, whose duty it should be to examine all physicians in that county, and to those who are competent issue licenses entitling them to practice their profession.

This Board should have authority to ignore the diploma issued by any Medical College, and the license of a practitioner should be granted upon his qualification alone. The State Society should also elect a board of censors, to whom appeals could be made by parties considering themselves aggrieved by the result of their examination by county censors, and their decision should be final.

In case there were not enough physicians in a county to form a society, two or more counties might be included in a district, and a district society established.

The term "school" should be construed to mean either of the following three classes: regulars, eclectics and homœopaths; and all others, of whatever name or nature, should be compelled to submit to an examination before a board of censors from one of these schools. Severe penalties for

violating the law should be imposed, and one-half of all fines collected should be given to the informer, and the other half, after deducting costs of suit in court, should go to the educational fund of the county in which the penalty was incurred. Such a law would create consternation in quackdom, and drive to the pursuit of some other branch of thievery, or perchance to honest labor, a multitude of contemptible vagabonds who now fatten upon the ignorance or superstition of their unfortunate victims.

The examination of candidates for admission to the medical profession should be regulated by some such system as that adopted in the examination of applicants for teachers' certificates, and before a certificate or license is issued to an applicant, he should be made to exhibit a thorough knowledge of the theory and practice of medicine; that is, be well grounded in anatomy, chemistry, physiology and obstetrics.

A diploma is often, we are sorry to say, not a reliable evidence of medical education or proficiency, and should only be regarded as collateral evidence of such qualifications, for these documents are often obtained by fraud and collusion, and are often no more evidence of the matriculation of its possessor than is the label upon a bottle of patent medicine a *guaranty* that it will cure all who partake of its contents and of its genuineness.

In New York a bill is said to have been introduced into the Legislature which provides that "the right of every citizen to employ for medical purposes the services of any individual in whom he or she has confidence, whether such employé has or has not a medical diploma, or has or has not registered as a physician, shall not be questioned in the State of New York." "No such employé shall be liable to fine or imprisonment for rendering such service when guiltless of any false representation in connection therewith, provided

that nothing in this Act shall be so construed as to except from liability any such employé on account of damage resulting from malpractice, misconduct or intoxication, either at common law or in the pursuance of any statutory provision of this State."

The enactment of such a law would be a public calamity. It would throw wide open the door to the whole army of nostrum vendors, rubbers, clairvoyants, *et id omne genus*, to prey upon the credulity, superstition or "gullibility" of the masses, and place the regular practitioner upon a level with the quack and charlatan. The people need a law to protect them from themselves as well as from the insidious practice of ignorant pretenders. It is an ancient axiom that "experience is a good teacher," but so far as the experience of the people with the humbugs of the day is concerned, it appears to fail of its effect. The sufferer, who has been bitten by one imposter, is almost always ready to try another; the trap, baited with some old woman's specific or retired clergyman's wonderful discovery, is sure of its victim, and, therefore, I repeat, the people need a law to protect them from their own weak and confiding natures. Such a law would doubtless prove satisfactory both to the profession and the public; it would call the attention of the non-professional to the importance of their knowledge, which can only be acquired by diligent study and extended experience, as a qualification for the practice of medicine, and lead them to place a just estimate upon the character of the earnest and conscientious physician and the responsibilities of his calling.

The province of sanitary science is to protect mankind against the ravages of disease, and, in order to do this, we must also afford protection against the malpractice of ignorant, designing and vicious persons. This can only be done by careful, intelligent and stringent legislative enactments.

The desired result I believe to be attainable, and it only requires an earnest, active, united and persistent effort on the part of those members of the profession, who, sinking all selfish considerations, are willing to labor in the interests of humanity, and for the elevation and development of medical science. Place educated physicians in the Legislatures of our States and the Congress of the Nation, and demand of them an account of their stewardship. Mens' lives and property are protected by law against the assaults of the assassin and the depredations of the robber. Shall they not also be protected against the insidious attacks of quacks and imposters, who, coming in the disguise of public benefactors, sap the foundation of their health and rob them of their substance at one and the same time? The law forbids the running at large of vicious and dangerous animals. There is no animal more dangerous to the peace and well-being of society than the medical quack and charlatan, and he should be suppressed by the strong arm of the law as effectually as a rabid dog or a mad bull.

In conclusion, I would respectfully recommend that the Committee on Medical Legislation be instructed to obtain, if possible, the medical laws of every State in the Union, and by selecting the best features of each, together with such local regulations as may be deemed advisable, draft a Bill and present it to each county society for suggestions or approval, and present said Bill, together with *all* suggestions or amendments that may be made by said county societies, to this Society at its next annual meeting for action thereon.

All of which is respectfully submitted.

SUPPLEMENTAL REPORT ON MEDICAL LEGISLATION.

BY IRA E. OATMAN, M. D.

MR. PRESIDENT, LADIES AND GENTLEMEN OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: Supplemental to the report of your able Chairman of the Committee on Medical Legislation, the following may not be devoid of interest to you. At the instance of this Society it has been my mission to serve you as Chairman of the above Committee three successive years, and the fourth as an humble member thereof, during which time I was a more or less *obscure* member of the *third* house of three sessions of the State Legislature, where vigilance, skill, and tact were necessary to prevent injudicious, unwise, and vicious legislation. During the two sessions of 1880–1 it required the assistance of the influential medical gentlemen sent from San Francisco to aid the distinguished medical men in both houses of the Legislature to prevent legislation in special interests and detrimental to the public good.

Very early in the *last* session, Senator Nelson offered a bill, generally acceptable, with important exceptions, one of which is, Section Seven, in part, as follows, viz.:

"Any person who has been engaged in the practice of medicine or surgery in this State for the last five years, and who has no diploma or license, etc., shall be allowed, within thirty days after the passage of this Act, to go before the faculty of any legally chartered or incorporated Medical College, Uni-

versity, or *Society* in good standing in this State, and be examined as to his or her qualifications to practice medicine or surgery," etc.

In support of this bill two attorneys were sent o Sacramento to secure its passage, at the instance of and employed by *four* physicians. The bill was referred to the Hospital Committee. With the concurrence of Dr. Orme, the Chairman of your Committee on Medical Legislation, and Dr. De Witt, and the advice of the San Francisco Medical Society and others, approved by the writer hereof, it was decided by Drs. Knight and Crumpton, the able Chairmen of the Committees on Hospitals in the Senate and House, respectively, to defeat all legislation affecting the medical law, if possible; but, if legislation must be had, to endeavor to amend Senator Nelson's bill and remove its objectionable provisions; or, to so amend the present law, as a substitute therefor, as to make it acceptable.

By request, I had the privilege of addressing the Senate Committee twice, in opposition to Senator Nelson's bill—once for ten minutes—after which Dr. De Witt, sent by the San Francisco Medical Society, was also heard by the Committee. Subsequently Dr. Plummer addressed the Committee at some length. The Committee reported the bill back to the Senate *without* recommendation.

There were other medical bills before the House, but the amount of business before the Legislature was so great, in proportion to the length of the session, that they were not reached, and no further decisive action was had in either house.

I relate this history of the proceedings in the Legislature to show that the earnestness and tenacity with which the Nelson bill was advocated before the Senate Committee, as well as the influence exerted upon members in favor of its

final passage, required formidable efforts, in the interests of science and of humanity, to overcome that influence on the Committee and on the Senate. Too much praise cannot be bestowed upon Dr. Knight, Chairman of the Hospital Committee of the Senate, for his able and efficient services in defeating the Nelson bill, whilst Drs. Crumpton and Briceland were doing services equally valuable in the House and in its Hospital Committee.

It is not pertinent, and should not be competent, for a few physicians to dictate or formulate a law regulating the practice of medicine in an entire State, especially if that law be retrograde instead of progressive in relation to the qualifications of practitioners. It is conceding to the few the right to dictate to the many, who not only have a very large numerical majority, but an equally large balance of intellectual, scientific and professional power. It is neither democratic nor republican in principle.

This brings us easily to consider what is best to be done. I will not say, "What shall we do to be saved?" for we are saved already if we walk in the light of science, and in the philosophy of the human mind and character. For most of the States now have laws regulating the practice of medicine, and their laws are sustained by the higher Courts. So have we a law, and ours is sustained in its fundamental principles by the Supreme Court of the State. But it has some objectionable features. It is obnoxious to just criticism. It needs revision and amendment, or rather, it should be superseded by one more perfect and yet more simple and concise. The bill printed with the transactions of the last session of this Society, called the bill of the Examining Board, approved by this Society at its last session, but not adopted as a whole, with a few *amendments* would embrace the fundamental principles required in a medical law, and not be objection-

able to the regular profession, nor yet to the educated irregulars, whose right to practice cannot easily be restrained by law. The bill does not mention the word homœopathy, nor eclecticism, but contemplates that no person shall be licensed to practice medicine or surgery after its passage, who is not *thoroughly educated* in the *elements of the medical sciences.* Such a law once in force would be heartily sustained by all classes of society. *We* need ask no more. The greatest degree of perfection in a medical law attainable in this age of American society would be secured. The singular behests and the morbid sensibilities of the most fastidious could be gratified, if, indeed, the education required would not raise the practitioner into a higher scientific altitude. Wherefore, as recommended in my former reports to this Society on this subject, the proper course for it to pursue is more than apparent in the interests of humanity, of science and of the medical profession in California; that is, for this Society to approve, adopt and recommend for passage at its *next* annual meeting, to be held in 1884, a bill to supersede the existing law that will meet the expectations and demands, as far as may be, of the people and the profession throughout the State.

A bill approved, adopted and recommended by this Society, and published in its transactions for 1884, would reach the profession in all parts of the State before the election, and probably before the nominations for all the members of the House of Representatives, which are to be elected that year, and possibly one-half of the Senators to compose the next session of the Legislature. This would give ample time for the profession, in behalf of the passage of such bill, to exert its best influence upon the members before they assemble in the State Capitol. Should adverse influences threaten the success of the bill, there is generally time for the medical

men of the constituency of the entire State to exert an influence upon all the members of the Legislature, which should secure its passage without formidable opposition.

In conclusion, I would respectfully recommend that the Committee on Medical Legislation, or a special committee for the purpose, be *instructed* by the Society at this session, to prepare a bill to supersede the present law, to be reported to the next annual meeting in 1884 for its approval and adoption, which will, as far as may be, receive the unanimous support of the Society in securing its passage through the next Legislature.

SUPPLEMENTAL REPORT ON MEDICAL LEGISLATION.

BY T. B. DE WITT, M. D.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: As a member of your Committee on Medical Legislation, I have the honor to report that inasmuch as this Society, at its last annual meeting, failed to recommend or adopt a substitute for the existing medical law, the action of your Committee, and other medical gentlemen, was to oppose all medical legislation in the recent session of the Legislature, and retain the present law as it now stands on the statute. Early in January of this year (1883), the Supreme Court again passed upon the constitutionalty of the law, and immediately following the decision of the Court came the attempt of the License Collector to collect the one hundred dollar license, as provided in Section Six (6) of the amended Act passed April 1st, 1878. This action, upon the part of the Collector, was urged by a Mr. S. Hastings *alias* Jordan, who voluntarily paid the one hundred dollars license, and strenuously insisted that all physicians and druggists in San Francisco should do the same, thus creating a feeling in the minds of the public that the law was unjust, oppressive, and worked a hardship upon a large class of persons if the law should be put into successful execution.

This mode of procedure developed a very formidable opposition to the law and a cry for its repeal from the retail

druggists of San Francisco, and several meetings were held by them to devise ways and means by which the law might be repealed. Two of the meetings I attended that I might learn something of the feeling of the druggists, and explain to them that the law was not intended to include the legitimate druggists or the regular physician. The subject was discussed before the San Francisco County Medical Society, and a committee appointed to visit Sacramento. With Dr. Oatman, of Sacramento, a member of your Committee on Legislation, I appeared before the Hospital Committee, to whom all medical bills had been referred, and asked for no medical legislation whatever; but hired attorneys were present urgently demanding the repeal of the present law and advocating the passage of the Bill known as the "Nelson" Bill, which was of no value to the public and equivalent to no medical legislation.

One week later Dr. R. H. Plummer and myself visited Sacramento and, in company with Dr. Oatman, again appeared before the Hospital Committee, advocating the present law, where we again met the hirelings of S. Hastings & Co. pleading for its repeal, or for such amendments as would give their clients the *carte blanche* to practice their nefarious business. As only a few days of the session remained, and much business that the Legislators thought of more importance than medical legislation was pending, no action in the premises was taken; therefore the law remains unchanged. And while your Committee claim diligence on their part, assisted by Dr. Plummer and other medical gentlemen, much honor is due the medical gentlemen in the Legislature, especially Senator Knight and Representative Crumpton, who labored in season and out of season in the interest of the law.

REPORT OF THE COMMITTEE ON HISTOLOGY AND MICROSCOPY.

BY PROFESSOR J. H. WYTHE, M. D. CHAIRMAN.

MR. PRESIDENT, LADIES AND GENTLEMEN OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: During the past year the chief interest of the profession has been concentrated on Koch's observations respecting the *bacillus tuberculosis*. The intrinsic importance attached to the discovery of the cause of consumption, which carries away such multitudes of our race, and the influential introduction of Koch's views by Prof. Tyndall to non-professional readers, have given widespread notoriety to the subject, and men who have never studied microscopy, and who could not distinguish a bacterium from a blood-corpuscle, have rushed into print in hope of some temporary eclat. There is danger of the inauguration of a bacillus craze, which will result injuriously to the cause of scientific truth. Perhaps the natural tendency to controversy, which seems inherent in the professional mind, may prove a sufficient safeguard.

The observations of Koch have already been questioned by Drs. Formad, Hunt, Schmidt, and others of undoubted ability as workers in histology. As to the reality of the bacillus—that is, that a special form of bacterium has been found in tuberculous matter, differing from most, if not all, other forms by its capability of receiving a colored stain from anilin blue, etc.—there can be no doubt. Culture experi-

ments, in many hands, have proven this fact. But the real question, as to whether this bacillus is *the* cause, or only *a* cause, or a mere concomitant of the disease, is yet unsettled.

A large number of experiments seem to point to the conclusion that the pathological changes in tuberculosis, as in many other diseases, may be produced by a great variety of causes, and that both mental and physical agencies play a not inconsiderable part, and many well-informed medical thinkers are strongly inclined to the belief that the search for any uniform and special material cause of such general diseases as consumption and fever is the chase of a delusive phantom. In the case of small-pox, syphilis, and other specific diseases the proximate cause can be traced to the multiplication of degraded animal cells in the healthy tissues, and the same may be said of cancers, sarcomas and other neoplasms.

Whether vegetable or fungus germs are equally distinctive, or as easily initiate pathological changes, as the altered and depraved animal cell, will be more clearly seen, it is hoped, when the conclusion of the present series of investigations is given to the profession. In the meantime, it is well to remember the known polymorphism of fungi (to which class the bacillus and micrococci are supposed to belong), or the manner in which their shape is changed according to their food and habitat, lest there be an unnecessary multiplication of species. A clear discrimination of the specific differences of bacilli and micrococci is still a desideratum. It is also necessary to consider the general opinion that fungi of all kinds are scavengers and removers of waste material. Sugary fermentation arises from the action of torula, and animal putrefaction from bacteria; in each case the living fungus breaks down and returns a large portion of the product of higher life to the inorganic world. Some observers have maintained that the torula sown in animal fluids change into

bacteria, and bacteria into torula in sugary fluid, while others consider the torula as simple spores of other moulds (as penicilium, etc.). In all probability, every kind of decaying material forms the habitat and food of fungi, whose shape may change with the change of their surroundings. Researches of fungologists, like De Barry, Berkely and Cooke, afford numerous proofs of this position. Unless this principle can be plainly shown to be inapplicable, the bacillus tuberculosis may yet come to be regarded as a blessing rather than a curse, a remover of effete material rather than a cause of disease.

In connection with this subject of disease germs, the paper of Dr. Sternberg, U. S. A., published in the *American Journal of Medical Sciences* for April, 1883, deserves especial mention. It is an account of experiments undertaken to determine the germicide value of certain therapeutic agents. From these experiments it appears that mercuric bichloride and iodine are our most reliable germicides, and that carbolic acid, salicylic acid, sodium hyposulphite, and other reagents which are quite popular as disinfectants, have a very inferior power. Such experiments are in the right practical direction, but require to be largely multiplied and sifted. How far, in any case, the failure of a germicide may depend upon the resisting vegetable cell-wall? What difference may be shown in its action upon an uncovered cell of animal matter and an inclosed vegetal cell? What modification may take place in the moist heat of the living body, or from the proximity of the living cells of the organism? All these questions should enter into the conclusion. It is quite suggestive, however, that the results of Dr. Sternberg's experiments demonstrate the value of clinical experience, and bring us back to the observations made at the bedside long before germ theories were mooted at all.

During the past year the Committee has received, through

the kindness of Dr. Fitch, of Honolulu, pathological specimens of leprosy, which are now being prepared for the microscope at the Cooper Medical College, San Francisco. Specimens of supposed parasitic worms have also been received from Portland, Oregon. Some of these were said to have been coughed up from the trachea of a young woman, and others had burrowed through her neck and chin. A microscopic examination of these specimens showed that some of them were small setigerous annelids, and others undoubtedly insect larvæ. None of them belonged to the ordinary entozoa. Although the history given with these worms was not impossible, yet the doubts suggested by the microscope indicate the necessity for caution on the part of medical men. A morbid craving for notoriety is not uncommon either among the laity or professional men, and is one of the "idols of the tribe," or "of the den," against which Bacon so eloquently warned the student of nature. This warning was never more necessary than at the present day.

REPORT OF THE COMMITTEE ON DISEASES OF WOMEN AND CHILDREN.

BY ANABEL MCG. STUART, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: In January of the present year, I mailed one hundred circular letters to members of the Society and a few other physicians of the State, asking for information with reference to the prevailing diseases of children in their localities during the past year. While the number of replies received is small compared with the circulars sent, they have enabled me, I trust, to select practical subjects for consideration.

Among the acute exanthematous diseases, measles, scarlet fever and Rötheln have been unusually prevalent in many portions of the State.

Rötheln is not an entirely new disease in this country, though but few American physicians ever saw a case of it until within the last decade, and not many were met with on this coast until within the last eighteen months.

On the Eastern continent the disease seems to have been known for many years, and is frequently designated as German, or French measles. The earliest cases in this country of which I have been able to obtain any reliable information occurred in and near Boston, in the year 1845; again in 1853 and in 1871 the same localities were visited. In 1870 the disease was very prevalent in and around St. Paul, Min-

nesota, and four years later it prevailed in different portions of Ohio.

The early epidemic of this disease in the Eastern States caused great confusion in the minds of many of the members of the profession in regard to diagnosis. It was usually designated as either "epidemic roseola," or "spurious measles."

Others, familiar with foreign medical literature, saw the resemblance between the cases in their practice and those described by continental writers, and had no difficulty in naming them.

As regards the classification of the disease, the latest authorities place it among the acute contagious constitutional affections.

The description of the symptoms by different writers varies to a greater extent in this disease than that of any other which I have investigated. This apparent conflict in describing the symptoms of Rötheln may be due to contemporaneous epidemics of measles and scarlatina. The former, although resembling in some respects both the latter, is independent of either, and has been known to closely precede or follow both of them. In a few cases the peculiar eruption of scarlatina has been seen on one portion of the body, and at the same time another portion has shown the crescent of true measles, yet each one has its peculiar *materies morbi* constituting a specific disease, and an attack of one will not protect the child from either of the others. In many cases it has doubtless been mistaken for and put down to the credit of measles as a second attack.

The history of the cases coming under my observation gives the incubating period at about two weeks, although some writers put it at eighteen days. The stage of prodromi lasts from six hours to several days. In a few cases the dis-

ease was ushered in by a chill, followed by an elevation of temperature. Frequently the pain in the back is not unlike that of small-pox. The throat is generally of a uniform redness, and the tongue ermine-like in the centre, with red marks along the margin. The eruption in the cases reported, contrary to the observations of Dr. Jacobi, began on the forehead, was a salmon color, not raised, and would disappear on pressure, but return when pressure was removed. As the eruption spread over the face it imparted a blush of uniform redness to the cheek, of a shining crimson appearance. On the chest, in the axilla and groin, and on the anterior tibial muscles, it was much like that of the face, while upon the coarser skin it was distinctly papular, rather crescentic in appearance and of a dark red color, bordering on purple. Enlargement of the cervical and post-cervical lymphatic glands is an almost constant accompaniment. The eruption lasts from three to five days and then rapidiy disappears. In some cases there is desquamation, in others not.

The reports show that we have had all forms of the disease, ranging from the mildest, with but slight eruption, to the most severe, all the symptoms being well marked. Only two deaths are mentioned, and those from the sequelae.

During the warmer months of the year, beginning in the latter part of May, the gastro-intestinal diseases of children prevailed to some extent in those portions of the State noted for their high range of temperature. The causes assigned are dentition, improper feeding and bad hygiene, all of which are supported by good authority. But are we not too ready to take the teachings of the masters in the profession unquestioned, without an attempt to investigate for ourselves? Without arrogating to myself either the desire or ability to lead in such investigations, permit me to suggest that children are equally exposed to all of these unhealthy conditions

in the Winter months, when they are comparatively free from those diseases; therefore, why the increase of the trouble in Summer? Taking into consideration the fact that these infantile bowel troubles are but little known in cities on, or near the coast, where the temperature is so influenced by the sea breezes as to show but slight change between "Summer's heat and Winter's cold," and where the warmest days are usually followed by cool nights, it is but reasonable to puspose that heat, continued for several days in succession, unrelieved by cool nights, is the prime factor in their production. How and why this is the case is largely a matter of speculation.

During the earlier months of a child's life, we know that its functions are largely carried on by the ganglionic system of nerves, and as its chief business is to grow and develop into maturity, the functions of nutrition are naturally very active. In order to maintain harmony in the forces that propel the machinery of life, it is not only necessary that the child should digest and assimilate healthy food in proper amounts, with a like supply of oxygen through the functions of respiration, but the elimination of effete matter must be equally active. The great centers of the ganglionic system are in close proximity to the principal organs of nutrition, including the circulatory and respiratory organs, which appears to be a provision of our Creator for protection from extremes of temperature and vicissitudes of the atmosphere.

Who has not observed in that dread disease, cholera-infantum, the Summer scourge of the Eastern States, the hurried respiration, with dusky tinge of skin, and purple lips and nails, showing that the inspired air has not been assimilated, neither the oxygen appropriated nor the carbon released from the blood?

Seeing, then, that the health of the young child depends

so largely on the condition of the sympathetic system of nerves, anything operating upon the centers of that system so as to interfere with the functions of respiration, digestion and excretion, as a continuous high range of temperature will do, it is but reasonable to conclude that continuous heat is mainly responsible for such diseases.

As to the manner in which the heat affects the ganglionic centers, there is room for varying hypotheses. It has been suggested that it may be in effect the same upon this ganglionic system as sunstroke is to the cerebro-spinal system, and that its results are deranged digestion and nutrition, the products of which irritate the digestive surface of the alimentary canal, and by reflex action upon these centers cause them to urge the viscera to throw off the irritating substances. Hence vomiting and purging are both but symptoms of faulty ganglionic innervation caused by continued high temperature. If these bowel troubles do depend upon crippled nerve innervation, the treatment should be directed to the source of the evil. The first indication then, would be the lessening of the animal heat, and securing free access to the lungs of pure, cool air, with cleanliness of the surface of the body, and the wearing of light woolen clothing, favoring free but not excessive perspiration. As to drugs, I will simply call attention to one class, the bromides, the use of which not only corresponds with the theory of the pathology advanced, but which, both alone and in connection with other medicines, have practically proven to be of great advantage in the treatment of this disease.

Whooping-cough has been generally prevalent throughout the State. In the southern portion it has been mild, but unusually severe in other sections.

As this is a disease conspicuous among the common maladies upon which the profession has of late years bestowed

but little scientific attention, it may be well to devote a short time to the consideration of the few new ideas that have been advanced of late with reference to its etiology and treatment.

Some years ago the nerve element in this troublesome affection received attention, as being the principal factor in the disease, and as such the treatment was specially directed to its relief, but of late this element is claimed to be but one of the results of the true cause of the disease. An interesting paper upon this subject was recently read before the London Medical Society, by one of its members, in which he gives the results of repeated experiments made upon rabbits, by inoculating them with the sputa of whooping-cough patients. By these inoculations he not only induced a catarrhal spasmodic affection, but the death of the animal generally followed in a few days, while inoculation with the blood of such patients was without effect, thereby confirming the conclusions reached by other recent writers upon the subject, that the materies morbi of whooping-cough, be it a bacillus or what it may, lives on the surface of the epithelium, and does not get into the blood. This writer does not claim to have arrived at positive knowledge in regard to the special bacteroid which causes pertussis, but his theory, as far as it goes, appears reasonable, which is: that whooping-cough is the product of germs, which, given off in the breath of those affected with the disease, and inhaled by persons of proper susceptibility, set up an irritation of the respiratory epithelium, the results being the vascular and nervous disturbances, and other phenomena which characterize whooping-cough.

As to treatment. If the dependence of this disease upon a specific virus be the true explanation of its pathology, the course by which its rational treatment and prophylaxis are to be pursued becomes plainer.

Among the various palliative remedies reported as prescribed, the coal tar products, notably cresylene, vaporized by heat and inhaled, are spoken of most favorably. Insufflations of the sulphate of quinia have also been favorably mentioned among the local remedies. Internally, croton chloral, and the bromides addressed to the nerve element, have their advocates.

Diptheria is, I know, one of the most written-up diseases claiming the attention of the profession. So much so that the diligent reader, it has been said, has come to regard the continuous flow of articles on this subject as a sad necessity, and has made up his mind to endure what he cannot cure. In view of these facts, I will only venture to give a hasty review of some of the recent investigations of the disease made by members of the profession in this country alone.

The most recent and important investigations as to the etiology and pathology of this disease have been made by Professor H. C. Wood and Dr. H. J. Formad of Philadelphia. These investigations were conducted under the auspices of the National Board of Health. After many and repeated experiments with membranes taken from cases of mild sporadic diptheria occurring in Philadelphia, and from those of epidemic and malignant diptheria occurring in Luddington, Michigan, they arrived at the conclusion reached by others before them, in effect that the disease is caused by the entrance into and the development and multiplication of micrococci or parasitic vegetable bodies in the system. They contend that these spores can be carried by any vehicle, or through any channel, just as the poison of small-pox is conveyed; as, for example, in a late epidemic in Europe, when Drs. Cameron and Morell Mackenzie traced the cause to infected milk. The milk vender washed his cans in a brook polluted with sewage, and fifteen of his customers were attacked on the same day.

As to the pathology, these experimenters contend that while this disease evinces its recognizable phenomena in the throat, the changes which render it so dangerous are produced in the blood. It has in fact been proven by them that bacteria are exceedingly abundant in the blood of malignant cases of diptheria; that they actually attack the white blood corpuscles, and that the disease produces its main effect upon the system by this process of killing the blood, as it were, at its very origin. These germs are said to be morphologically identical with those found in the scrapings of a furred tongue —not the result of a specific disease—but they are not found in the blood of healthy individuals. The micrococci of malignant diphtheria have one distinguishing feature however, in that they can be cultivated to the tenth generation without entirely losing their poisonous properties, while the ordinary germs can only be cultivated for four or five generations without becoming inactive. Therefore we may conclude that the difference between the poisonous and non-poisonous micrococcus is not of form, but of vital activity. If this condition of the blood is found to be universal, it will furnish us with valuable evidence of the nature of the disease.

In treatment the reports received upon this subject show decided progress in the discarding of the former severe local applications by means of swabs and probangs, and substituting insufflations of various medicines, as the carbolized spray, lime water and other soluble substances used with the steam atomizer, which is of undoubted utility in the local treatment of this disease. A few report favorably of the application of lactic acid; others of the free application of chloride of sodium, to remove the patches of membrane. Constitutionally the general course appears to have been antiseptics, stimulants and tonics, with a plain nourishing diet. Pilocarpine has been tried and found wanting. Sulpho-car-

bolate of sodium, in large doses, is most favorably mentioned. Tracheotomy was resorted to in one case to relieve dyspnœa, but the patient finally succumbed to asthenia. As a whole the results have been favorable.

Epidemic catarrhal fever deserves mention here, not, however, as peculiar to children, but as having been very prevalent among them during the past year, not only alone, but complicating all other forms of disease. Its history under its Italian name, influenza, dates back to the tenth century, but the first authentic record begins with the epidemic of 1510, in Europe. Since that time there have been about one hundred epidemics of this disease, varying in severity and at irregular intervals. These epidemics have been singularly uniform in identity of characteristics, and in obedience to law of origin and diffusion. It travels in cycles, and its progress is very rapid—a great wave, as it were, from east to west, precipitating itself upon communities and countries with a suddenness warranting the name sometimes applied to it, "lightning catarrh."

Of the etiology or cause of this disease but little is definitely known. Schönbein regarded it as due to an excess of ozone in the air. Others think it caused by electrical disturbances of the atmosphere, but later authorities are in favor of classifying it among the diseases having a mycotic origin. The duration of an epidemic in a given locality is from four to six weeks, but exceptionally, it has run much longer, as in the one that we are just passing through. Judging from the manner in which the disease has clung to us this Winter, we might regard tenacity as one of its distinguishing features. It has also manifested itself under an unusually great variety of symptoms. While one child sneezes incessantly, a second has pain in the head or side; a third suffers most from the severity of the cough; a fourth from nausea and vomiting;

and a fifth is exceedingly restless and nervous; yet they all experience a few symptoms in common, as increase of temperature from 102° to 105°, an indescribable weakness of the muscular system, with more or less torpor of the mental faculties. The tongue resembles that of typho-malarial fever in the milder form; but in no case have I seen that dry, deep brown coat, or the red edge, styled the "beef red tongue," so frequently seen in the more severe cases of that disease. The fever in influenza is generally preceded by chilly sensations, and reaches its acme within two or three days, and in favorable cases it usually continues with slight varying remissions from one to two weeks; occasionally, however, it will run from three to four weeks. In the nasal variety the fever which follows the chill is accompanied by a dry, hot feeling of the schneiderian mucous membrane, with sneezing. The catarrh frequently extends from the eyes and nose to the antra and pharynx, causing pain in the cheeks and soreness of the throat.

The treatment has been foreshadowed by the symptoms described. Quinia most liberally used. My preference in this disease is for that form called "dextro-quinine," giving about twenty-four grains in as many hours. It is equal in effect to three-fourths of that amount of the sulphate, with not one-fourth of the unpleasant effects upon the nervous system. The tannate of quinia in about five-grain doses is also favorably mentioned. Inhalations from the atomizer of the benzoate of sodium, or weak solutions of carbolic acid in glycerine and water, with aconite, opium, and belladonna internally, have their advocates, but quinia in some form appears to be the leading agent in the most successful treatment. Tonics and stimulants, excluding all depletive measures, are the main dependence in that form of the disease known as bronchopneumonia. No cases of the abdominal variety causing peritonitis have been reported, though several cases, among adults, have occurred in this vicinity, some of them proving fatal

In a backward glance over the field of gynecological literature, the student of medical history is forcibly impressed with the increasing and favorable attention, of the last few years, given by prominent members of the profession both in this country and in Europe, to a therapeutic agent which, for many years prior to the middle of the present century, was not only discarded by the vast majority of the members of the profession of medicine and surgery, but was relegated to the school room or to the hands of the charlatan. That agent is electricity!

Sir J. Y. Simpson was the first to call attention of the profession to the use of the galvanic intra-uterine pessary, which has since been modified by Professor T. G. Thomas, and improved by Professor Cole, of San Francisco, and so successfully used of late years for the correction of curvature of the cervix uteri, caused by atony of the uterus and its appendages. This form of pessary has also been recommended in a condition of the uterus known as puerperal atrophy, a condition which sometimes follows delivery where the physiological process by which the enlarged uterus should be restored to its natural state, is carried to excess, thereby taking on a pathological action.

More recently the utility of electrization in all forms of uterine displacement has been abundantly demonstrated. Tripier, of France, and Professor Bartholow, of Philadelphia, were among the first to advocate the use of the galvanic current of electricity in the nutrient diseases of the uterus. In cases of subinvolution, congestion, and chronic metritis, they claim that the galvanic current is especially applicable, as it can be made to act directly on the uterine vessels. In cases of displacement of the uterus dependent upon relaxation of the so-called ligaments, localized faradization, or the two currents combined, are considered preferable to the galvanic alone.

A review of my case-book, for the last four years, gives

ninety-one cases of uterine displacement, consisting of versions, flexions and prolapsus of the first and second degrees, successfully treated with electricity, in its varied forms as above described, in connection with constitutional treatment, as indicated, and the use of vaginal injections, but discarding all mechanical supports excepting the application of tampons of absorbant cotton, which acted both as a support and vehicle for local medication. In the above ninety-one cases the different currents of electricity were used both locally and generally, and were designed and proved to be the main curative agents in the treatment, giving a much greater percentage of perfect permanent recoveries than where pessaries of various kinds were used instead. I do not wish to be understood as condemning the judicious use of the pessary, for I consider it indispensable in the treatment of cases. The time occupied in the treatment of these cases varied from two to six months, and, so far as I have been able to follow their history, relapses were less frequent than among those treated without the use of the electrical currents.

During the last eighteen months I have treated with the faradic current four cases of prolapsus of the ovary into Douglass' cul de sac, accompanying a backward displacement of the uterus; all due, apparently, to a relaxed condition of the ligaments. I found varying degrees of tenderness of the organ in all the cases, but no adhesion to adjacent structures in any of them. The displacements were corrected without difficulty, by having the patient assume the knee-elbow position and elevating the posterior vaginal wall the uterus taking its normal position was retained by tampons of absorbent cotton pressed firmly into the cul de sac, formed by the neck and the vagina. The tampons were changed every forty-eight hours, and the removal of each followed by copious vaginal injections of hot water, about 110° F. As soon as the tenderness admitted of it, immediately after each injec-

tion, five to fifteen minutes were occupied in the application of the faradic current to the cervix and in the region of the ovaries or over the lumbar spine. These local measures were accompanied by such constitutional treatment as seemed requisite. The most tedious of the four cases just mentioned was about four months under treatment, the others shorter periods, varying in length.

Dr. Mann, in the *London Lancet*, speaks favorably of the use of the galvanic current in cases of what has been generally known as neuralgic dysmenorrhœa, with its associate ovarian irritation. He recommends its use by means of two external electrodes, the anode or positive being placed over the affected ovary, and the cathode or negative over the lumbar portion of the spinal column. He cautions against using the currents where there is acute ovaritis, but uses it in the tenderness and enlargement due to passive hyperæmia.

We occasionally meet with cases of simple erosion of the cervix uteri that yield very slowly to treatment, in fact, appearing intractable to the usual course pursued. In such cases the galvanic current has been very satisfactory, applied by using the negative pole by means of a button electrode to the erosion, with the positive sponge placed over the abdomen, making short applications two or three times a week. In cancer of the cervix I have known the ravages of the disease to be retarded, the pain lessened, and the life prolonged by the use of galvanism applied as for simple erosion. As to other therapeutic measures in the treatment of this terrible disease, I can only say that Chian turpentine has received a faithful trial, and has proven utterly worthless; and I can say but little more for condurango. Not long ago a St. Petersburg journal reported ten patients treated by the last mentioned drug, resulting in four recoveries, three deaths, and three still under treatment.

REPORT OF DOUBLE SYNCHRONOUS AMPUTATION OF LOWER EXTREMITIES,

In Five Cases of "R. R. Crush," with Remarks.

BY E. H. WOOLSEY, M. D., OF OAKLAND, CAL.

CASE I.

Primary Synchronous Amputation of Left Leg and Right Foot. Operations during collapse, without anæsthetics, followed by prompt reaction. Sent to County Infirmary. Death eleven days after from alcoholism.

Edward Tyler, a colored, middle-aged, emaciated drunkard, had both feet run over by the local train of the Central Pacific Railroad, at Market street, Oakland, at 7:30 P. M., November 17th, 1877. He was taken to the City Hall, about one mile distant, where I soon visited him. His breath was alcoholic, and he was in a condition of extreme prostration from shock. There was no perceptible pulse at the wrist, and the skin was covered with a cold sweat, still he was able to speak. His feet were terribly mangled; the toes and metatarsal bones of the right foot, and all of the bones of the left foot and ankle, had been ground into small pieces. The injured parts were completely anæsthetic. Brandy was administered, and immediately after a thready pulse was detected; but this effect was transitory, and it was soon discovered that in order to maintain the pulse the stimulant had to

be repeated every four or five minutes. This was done, and continued for an hour and a half, except on two or three occasions, when the experiment of withdrawal was tried, which invariably resulted in complete cessation of the radial pulse and marked reduction of pressure in the carotids. The patient now talked freely and rationally, stating among other things that his feet felt numb. His condition, however, was that of profound collapse and thought to be hopeless; still it was decided by the City Physician, Dr. L. H. Cary, and myself, to try the experiment of cutting off. Without anæsthetics I proceeded to cut into the right foot, and amputated it at the tarso-metatarsal articulation, forming the flap of necessity from the sole. Patient spoke frequently during the operation, but did not evince the slightest sensation of pain. I repeatedly inquired if I hurt him, and he replied in the negative; in short he did not seem to realize what was being done except from what was said. During, and at the conclusion of the operation, there was no apparent change in the patient's condition other than a gradual loss of power. He continued to sink, and at 11 P. M., about an hour after the above operation, death seemed imminent. The pulse flickered only an instant after stimulation, respiration was more labored, the skin was reeking with cold perspiration, the mouth was open, the nostrils dilated, the voice was reduced to an almost inarticulate whisper and the patient so drowsy that he could scarcely be roused. Again it was resolved to try surgery as a "*dernier resort*," and to this end we attempted to whip up the circulation to the maximum by means of brandy. The latter was given about every minute until midnight, when we had secured a continuous tremor at the radial artery and a slight improvement in speech, but no other expression of power. Patient's wounds were still perfectly anæsthetic. Without using any agents whatever to deaden sensibility

I commenced to perform a nearly circular amputation of the left leg, about three or four inches above the ankle joint. Upon inquiry the patient said he did not feel anything, and I went on cutting through skin, muscles and bones, ligating almost bloodless arteries and passing sutures without occasioning the slightest pain. While wrapping up the stump, patient complained for the first time of pain. The pulse now became perceptibly stronger and a little blood oozed from the stumps. Reaction was beginning, soon after the skin became warmer and natural sensation returned, and in the course of twenty minutes after the operation a general restoration of vital power occurred. The stimulant was gradually withdrawn, and about one o'clock the patient went to sleep and slept for several hours undisturbed. On the following morning he was safely conveyed by ambulance to the County Infirmary, about ten miles distant, where he survived eleven days.

NOTE.—Antiseptic precautions were taken during the operation, and were, I am informed, afterwards maintained at the Infirmary. The left stump healed kindly, but the right suppurated badly, probably on account of the contusion which the flap had received. The principal cause of death, however, was chronic alcoholism

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CASE II.

Primary Synchronous Amputation of right leg and left foot, and Secondary Amputation of left thigh (upper 3d.) Gangrene, Putrefaction, Sloughing, Recovery—walks on artificial right leg with crutches.

Patrick Tierney, laborer, aged fifty, was run over by the local train of C. P. R. R. at Broadway, Oakland, about 9:30

P. M., October 6th, 1878. He was carried a few steps to the depot where I soon saw him. His right foot and ankle, and the anterior part of his left foot had been crushed and nearly severed. There was a moderate amount of hemorrhage, which was immediately controlled by bandaging. There was considerable shock—pulse extremely weak and occasionally imperceptible, skin cold and clammy, and temperature (axillary) 95½°. He was much excited, talked incoherently, and was occasionally quite delirious. The mental disturbance seemed to be partly due to the influence of liquor taken prior to the accident. Brandy and carbonate of ammonia were freely administered and the patient rallied and became quiet, and was removed to a private hospital about one mile distant. He was kept in a horizontal position in the carriage and bore the transit well. Upon his arrival at the hospital he had so far recovered as to be sensitive to pain and to converse intelligently. Realizing his great misfortune he preferred to die, and positively refused to be operated upon. He was, however, forcibly restrained and etherized. Assisted by the late Dr. Lyell Hudson, I amputated the left foot at the metatarso-tarsal articulation, removing all injured tissues that seemed to be irreparable, applied one ligature, washed stump thoroughly with a strong solution of carbolic acid and closed with silver wire. (The flaps were derived from the dorsal and plantar surfaces and were of equal length.) The stump was dressed with fresh oakum soaked in the carbolized wash, and the bandage was carried to the knee. At the conclusion of the operation patient came near dying of asphyxia, but by the prompt action of Dr. Hudson in withdrawing the tongue, and making artificial respiration, restoration was effected. Symptoms of collapse, however, soon ensued. We applied external warmth, raised the foot of the bed, and gave brandy freely. This treatment was maintained for several hours

with good effect. On the following morning at nine o'clock Dr. Hudson again administered ether, and I made a rapid circular amputation of the right leg a little above the ankle-joint, applied two ligatures, closed stump with silver sutures, and used same antiseptic precautions, and dressings as described in management of left stump. Patient bore the amputation and the anæsthetic well. During the day he became restless, and was given elixir of opium, and milk punch. Six P. M. patient easier; some hemorrhage from right stump, which was controlled by tight bandage.

October 8th—Patient apparently doing well, but instead of the usual fever of reaction, there seemed to be a lack of vitality. The right stump looked well; and that portion of the left stump at site of the amputation looked well too, but the skin above it and about the ankle-joint was edematous and discolored. This appearance was obviously due to contusion received at the time of the accident, though there were no observable signs of such contusion at the time of making the amputation. Redressed stumps as before, using a three per cent. sol. of carbolic acid as a wash, and ordered a lotion of the same strength to be constantly applied.

October 9th —Patient's general condition about the same; disinclined to take food, but drank iced milk punch freely. Some suppuration in both stumps; removed several sutures from each to permit of free drainage.

Suppuration increased from day to day, in spite of antiseptic cleanliness, stimulants, nourishment and tonic doses of quinine, and the possibility of preserving life in the tissues became less and less.

On the 13th of October the tissues of the left stump were sphacelous, and gangrene was streaking up the leg. The right stump was sloughing badly and touched with gangrene. The odor from the wounds, in spite of frequent cleansing and

almost constant irrigation with strong solutions of carbolic acid, was extremely offensive. Salicylic acid was tried in powder, and also in alcoholic solution, but as an antiseptic and deodorizer was found to be far inferior to carbolic acid. The patient, who was quite emaciated to begin with from hard labor and poor fare, was now rapidly losing flesh, looking very pale, and complaining of frequent "sinking spells." I had ordered him a pint of whisky daily, but now ascertained by accident that he had deceived me and had taken only about one-fourth of that quantity. After this he was forced to drink from a pint to a quart a day with milk. The gangrene of the left leg spread rapidly to the knee, and on the 16th of October a vague line of demarkation showed itself just above the knee. The patient was again etherized by Dr. Hudson, and I performed an autero-posterior skin flap amputation of the thigh at the lower part of the upper third, going well above the infected tissues. During the operation an accident occurred which came near proving fatal. Just as the limb was severed, I screwed down the tourniquet and the strap broke, and a jet of blood from the femoral artery shot across the room, but quick as thought my assistant pressed his thumb upon the vessel at the groin and controlled the hemorrhage until I had done ligating. The utmost care was taken to prevent local infection of the new stump, and it was washed and dressed antiseptically, as the others had been, and besides was covered over after with a thick layer of cotton. Patient rallied well after the operation, and for two days the new stump looked fairly well, but on the 19th of October it began to slough, and on the 20th nearly all the sutures were removed in order to thoroughly cleanse it. The right stump was now looking much better, as the gangrene had become limited to the cut tissues.

In addition to the whisky and quinine and milk and beef

tea which the patient was taking, I now ordered about one drachm of tincture of iron daily. For a day or two there was no material change in the patient's condition, though a manifest process of separation of the gangrenous flaps of the right stump was developing. On the other hand, however, gangrene of the left or thigh stump was beginning to show itself. On the 24th of October the odor from the thigh stump was, in spite of the most perfect cleansing and a most liberal use of carbolic acid, permanganate of potass and fresh oakum, so offensive as to be smelt in the street. A better quality of whisky was obtained and a quart a day ordered, and a quart a day was drank by the patient for upwards of two weeks. The gangrene of the thigh stump, like that which affected the right stump, confined itself to the peripheral tissues, and by the 28th of October the flaps, together with a margin of skin above, had been cast off as sloughs. Such had also been the effect of gangrene and sloughing in the right stump, though the latter at this time presented a healthy granulating appearance, with the exception of an exposed and necrosed portion of the end of the tibia, which was removed by operation (operation No. 4.)

Patient steadily improved, and by the end of October both stumps were healthy and healing over rapidly, and he was able to sit up in bed. Improvement went on; patient had a good appetite, became cheerful, increased in flesh, and on the 11th of November, five weeks after accident, he could help himself in and out of bed. Cicatrization of both stumps was nearly complete, and he was sent to the Railroad Hospital at Sacramento.

NOTE.—He came to Oakland about a month after leaving here, and his stumps were then quite sound and in no wise sensitive—in short, very good stumps. He is still living and in good general health, and gets about on crutches with an artificial right leg.

CASE III.

Primary Synchronous Amputation of Right Thigh (lower third) and Left Leg (two inches below knee.) Putrefaction and Septicæmia. Recovery—walks on artificial legs with crutch and cane.

Herbert Powell, age 14, fell from local train of Central Pacific Railroad, near Center street, Oakland, about 5 P. M., August 27th, 1881, and had both legs run over. He was immediately taken to his home, near the station, where I saw him a half hour later. His right leg had been crushed to the knee, and his left leg was severed at the middle, and contused and lacerated nearly to the knee. He was deeply shocked, had lost much blood, and was yet bleeding. Tourniquets were adjusted to the thighs, and patient taken from the floor and placed upon a table, and was covered with blankets and given whisky and water freely. A half hour or more passed and he did not show any signs of reaction; on the contrary, he seemed to be sinking. Dr. W. B. Simonton administered ether, and I amputated the right thigh at the middle of the lower third, making a short antero-posterior skin flap operation. After the cutting off we found, to our dismay, that there was not the slightest flow of blood, even after the tourniquet was completely released, and moreover, that the patient had ceased to breathe—in short, that he seemed to be dead. The anesthetic was quickly withdrawn, as was the tongue, and artificial respiration practiced. In a few moments patient breathed again, and soon after swallowed some whisky and water. The stimulant was frequently repeated, and external warmth applied to trunk. Without anæsthetics I ligated the arteries, washed the stump with a strong solution of carbolic acid, closed the flaps with silk, and dressed stump with absorbent cotton, applying first a thin layer soaked in the carbolized so-

lution, and then a thick dry layer, and a flannel bandage was snugly applied and carried nearly to trunk. The patient having by this time become restored and sensible to pain, ether was again administered, and I amputated the left leg just below the knee, making flaps of necessity—a long posterior and a short anterior, the latter having been lacerated in the middle to a point above the tubercle of the tibia—virtually making two anterior flaps instead of one. After ligating bleeding vessels the two sections of the anterior flap were drawn together with silk over the surface of the tibia, which had been exposed by the injury, and then, after washing the parts with the carbolized solution, the flaps were sutured and the stump dressed, as in the case of the right limb.

Patient was carried to his bed, warmly covered, and surrounded by bottles of hot water, and as soon as he could swallow was given a drink of whisky and water, which was repeated frequently during the night. He improved, but did not recover consciousness for several hours, and did not emerge from the shock until the following morning.

August 28th, 9 A. M., pulse 125; temperature, 100½°; ordered ice to eat and iced milk to drink.

August 29th, A. M., pulse, 130; temperature, 101°; stumps looking well; redressed with absorbent cotton soaked in a two per cent solution of carbolic acid; dressings loosely applied and covered with crinoline bandages; stumps ordered to be freely wet with the carbolized solution every hour.

August 30th, A. M., pulse. 120; temperature, 101°. In the afternoon very restless and feverish. Ordered fifteen drops of spir. ether-nit., which abated the fever and quieted patient in a marked degree. This dose was repeated twice during the evening with the same happy effect.

August 31st, A. M., pulse, 120; temperature, 101½°. Stumps redressed as before; looking well; two sutures removed from each; no discharge; bowels moved by enema. Ordered teaspoonful doses of a mixture containing one drop of tr. aconit. rad. and ten drops of spir. ether-nit. to each drachm, every hour during high fever. Ice and iced milk continued, also frequent wetting of stumps with cold carbolized lotion.

September 1st, A. M., pulse, 120; temperature, 101°. stumps looking well; discharge slight.

September 2d, A. M., pulse, 118; temperature, 101°. Strength of carbolized wash and lotion reduced to one per cent. Ordered seidlitz powders.

September 3d, A. M., pulse, 105; temperature, 100°. Stumps looking well; movement of bowels during night.

September 4th, A. M., pulse, 120; quick; temperature, 100½°, and skin hot. Stumps looking well and discharging moderately, but right stump has a foul smell. Increased strength of carbolized wash and lotion to two per cent.

September 5th, A. M., pulse, 120; temperature, 100°. Some accumulation of matter in stumps, removed several sutures from each. A ligature from right stump came away. Bowels moving spontaneously every day.

September 6th, A. M., pulse, 110; temperature, 100°. Right stump still foul. Increased strength of carbolized solution to three per cent.

September 7th, A. M., pulse 120, temperature 100°. Patient complains of pain in the amputated left foot—some visitors having been talking in his presence about a wonderful instance of such trouble, and relief obtained from disinterment and straightening out of foot.

September 8th, pulse 120, temperature 102°. Stumps looking well and showing outward tendency to heal, but both foul; left groin tender, and superficial veins at upper part of

left thigh swollen and painful to touch. Increased strength of carbolized solution to four per cent., and ordered five drops of tincture of iron every four hours.

September 9th, A. M., pulse 150, temperature 103½°. Skin hot, dry and sallow; inguinal glands of both sides swollen and tender, and veins of both thighs enlarged and painful; stumps foul, but discharging freely and looking well; however, on squeezing the right stump for the purpose of forcing out all the matter, the end collapsed beneath my grasp with a crackling sound and sensation, and masses of foul pulpy matter escaped. The blood and exudation retained within the stump had undergone putrefaction, and gases of decomposition had developed, and all without breaking down and without altering the outside appearance of the stump, or evincing any other indication of the disturbance within except the foul odor and the symptoms of infection or septicæmia. All of the remaining sutures were removed, and the stump syringed and washed out with a five per cent. sol. of carbolic acid. The left stump was opened and a small quantity of pulpy putrefactive matter was found within the flaps, which looked perfectly healthy without. This stump was dressed as the right had been.

P. M., pulse 160, temperature 105½°. Slight rigors. Increased the dose of tincture of iron to fifteen drops, and two grains of sulphate of quinine with each dose of the iron, every four hours.

September 10th, A. M., pulse 140, temperature 101¾°. Patient better; stumps clean; and discharge less foul. Swelling and tenderness of veins and inguinal glands subsiding.

September 11th, A. M., pulse 120, temperature 101°. Improving.

September 12th, A. M., pulse 120, temperature 101½°. Improving. Last ligatures removed from left stump.

Patient continued, for a time, to do well in every respect. The doses of quinine and iron were diminished and the carbolized wash was gradually reduced to two per cent. On September 13th, 14th, 15th and 16th, the morning temperature was exactly 100° and the pulse from 105 to 110. But on the 17th the temperature rose to 101° and the pulse increased to 125. The stumps looked clean and healthy and the discharge was sweet, but the left limb twitched and jerked frequently. The bone of this stump was partially exposed by retraction of the skin. The bone of the right stump was also slightly uncovered by the same cause, and though both thighs had been bandaged every day for some time from above downwards, the retraction was only temporarily prevented as the bandages soon loosened. Weight extension was now applied to the left limb by means of strips of adhesive plaster, and answered a most excellent purpose. The weight used was a bag of shot varying from two to five pounds, according to the feeling and dictates of the patient; the steady pulling quieted the leg perfectly, and by preventing retraction of the skin served to cover the bone and favor repair, and moreover, to keep the leg extended, or, in other words, to prevent flexion of the short stump. This appliance did not interfere with the dressing, as the loops of plaster were so long that when the weight was raised the end of the stump was readily exposed.

On September 18th, the morning temperature was only 99½°, and it remained at from 99° to 99½° to September 26th, and was thereafter normal until October 10th, at which date patient was seized with rigors, accompanied by high fever (pulse 120, temperature 103½°), the cause of which I did not at once discover. The stumps looked healthy and were healing over rapidly, and the patient seemed otherwise well and was free from pain. Upon the strictest inquiry I could not gain the

slightest clue as to the cause of the fever, etc. The patient had frequently taken the liberty of reapplying the bandage to his right thigh, which was employed to prevent muscular action, and he had done it so well that I did not object. Without suspecting anything wrong, but groping, as it were, in the dark in my search, I thought I would remove all the dressings and bandages. I began with the left limb and found it all right; then I uncovered the right and discovered, somewhat to my satisfaction and greatly to my surprise, that its circulation had been interfered with by tight bandaging to such an extent as to fully explain the disturbance referred to. I rebandaged the thigh with a crinoline roller, and ordered the latter to be kept wet with the carbolic acid wash, and in a day or two the limb was all right again. The fever gradually subsided, as follows: temperature 11th, 100½°; 12th, 99½°, and 13th, 99¾°. Both stumps were now nearly healed, but the cicatrix of the right stump was becoming adherent to the end of the bone in spite of bandaging, etc., and I applied adhesive strips to the skin and adjusted the weight extension similar to that used in the left leg, and with very good results.

On November 5th, ten weeks after the accident, patient was discharged with sound stumps and in good general health.

REMARKS.—The left or leg stump was, on measurement, only two inches in length—only three-quarters of an inch below the tubercle of the tibia; and the cicatrix, on account of the initial laceration of the anterior flap and the retraction of skin following putrefaction, was quite large, and the covering of the right or thigh stump, owing to the destruction of deeper tissues by putrefaction and the subsequent retraction of the skin, was thin and somewhat adherent to the bone. Under these circumstances it was hardly expected that either stump would be of much service to the patient; but in that

we have been agreeably disappointed, for pressure on both stumps is well borne, and the young man is now, and has been for several months, walking about with ease and attending school on artificial legs (Spring's make), with the assistance of a crutch and cane. In this way he can walk as fast as any one and get on and off cars, etc., but his movements are awkward, as the mechanism of the right artifical leg does not enable him to use the artificial knee-joint with accuracy; but he wears the leg constantly, because it serves as a support—as a rest to the other leg while standing, and to steady himself in walking. With reference to the left stump, the expediency of attempting to save a two-inch leg stump, and that mutilated, was at the time of amputation considered somewhat doubtful; but the wisdom of the choice has been demonstrated in usefulness incalculable, for the expanded head of the tibia affords an excellent bearing for the artificial leg, and with the latter adapted there is good action of the knee-joint, without which progression would seem to be impossible.

NOTE.—Subject was exhibited at the meeting, and had improved so much as to be able to walk well without the assistance of either crutch or cane.

CASE IV.

Primary Synchronous Amputation of Right Leg and Left Foot. Erysipelas, diffuse suppuration, gangrene, sloughing, and septicæmia. Recovery—walks with an artificial right leg.

Henry S. Turner, horse trainer, aged thirty-two, jumped from local train of Central Pacific Railroad, and was run over, at Alice street, Oakland, November 16th, 1881, about 6

A. M. He was removed immediately to the Receiving Hospital, about one-fourth of a mile distant, where I soon after visited him. The right leg was severed a little above the ankle, and the anterior part of left foot was severely crushed. There was a scalp wound two inches in length on the left side of head, and severe concussion of brain. There was a medium degree of shock, and free hemorrhage from all the wounds.

A tourniquet was adjusted to the right thigh, the crushed left foot was tightly bandaged, and the scalp wound sutured and dressed. Patient was unconscious, but not altogether insensible to pain. Pulse, 104; temperature (axillary) 96°. Without delay I proceeded, with the skillful assistance of Dr. H. T. Legler, the hospital physician, to etherize and operate. I made a modified circular amputation of the right leg above the injured tissues, at the upper part of the middle third, at what I considered the point of election; tortioned the bleeding arteries (using no ligatures), washed the stump with a strong solution of carbolic acid (about four per cent), and closed with silk sutures, leaving several of the central sutures untied, and covered the stump temporarily with a towel soaked in the carbolized wash. I then proceeded as hastily as possible to amputate the left foot through the metatarsal bones, tortioned the bleeding vessels, washed the stump with carbolized solution, and closed integument with silk, leaving an interval for drainage. In this amputation I was obliged to include in the flaps a considerable portion of lacerated and contused skin. The anæsthetic was withdrawn, as the patient was sinking, and the stumps, in the order of operating, were again thoroughly cleansed of blood by washing out with the carbolized solution, and snugly dressed with absorbent cotton and crinoline bandages previously soaked in the carbolized solution- the open sutures of the right stump having been tied. The dressing was then completed by enveloping the stumps in

fresh oakum. External heat was applied to trunk, and whisky and small doses of tinct. opii. camph. administered. At 5 P. M. there was fair reaction; pulse, 108; temperature, 98½°; mind wandering and patient restless. The dressings were saturated with blood, but upon their removal there was no hemorrhage. Redressed stumps as before.

November 17th, pulse, 120; temperature, 99°. Restless night; some oozing of blood, caused by tossing stumps about during delirium. At times patient's mind was partially clear and he complained of pain in bowels and painful micturition. Ordered warm applications to abdomen, and fifteen drops of tr. opium every four hours, which was followed by good effect. Redressed stumps as before, using a two per cent instead of a four per cent solution of carbolic acid.

During the afternoon patient became very delirious, and tossed his legs about so violently that he had to be restrained by strapping him to the bedstead. Bromide of potassium, chloral, and other remedies were administered, but restlessness and delirium continued as a troublesome complication for several days, during which time restraint was maintained. The stumps were dressed daily on account of the oozing of blood caused by restlessness, etc. The contusion and hemorrhage caused by the violent tossing about not only prevented the immediate repair aimed at by the avoidance of ligatures, but conditioned the tissues for distruction. An ichorous discharge appeared on the fourth day, and on the fifth gangrenous blebs surrounded the margins of the wounds. Sloughing and suppuration supervened, and at the end of the first week had uncovered the bones of both stumps. At this time an erysipelatous redness of the left stump extended above ankle, and the entire leg was very edematous; pulse ranged from 100 to 130, and temperature from 100° to 103°. Patient's mind was perturbed, and occasionally delirious. He had

diarrhea, and when he slept, sweat profusely—he had septicæmia. The stumps were now thoroughly cleansed at each daily dressing with a six per cent solution of carbolic acid, and twenty drops of tincture of iron with three grains of sulphate of quinine every four hours, and a liberal quantity of concentrated nourishment were ordered. Sloughing and suppuration increased, and the integument of left stump became gangrenous and offensive, and on the tenth day diffuse suppuration extended about the ankle and up the sheaths of the tendons to the middle of the leg—pressure at the latter point caused pus to flow freely at the stump. The matter was squeezed out, and syringed out with the strong solution of carbolie acid, as thoroughly as possible at each dressing; and several incisions were made about the ankle to give free exit to purulent accumulations. There was extensive sloughing and suppuration of the right stump; but the process here was limlted to the tissues of the stump. For a time it seemed utterly impossible to save any portion of the left foot, but a a continuance of the foregoing treatment—local and constitutional—had caused some perceptible improvement at the end of the second week. After this the destructive process steadily abated, and during the third week signs of repair were observed. The strength of the wash was now reduced to two and one-half per cent. The wounds looking worse, however, the strong, or six per cent solution of carbolic acid was again used, and with marked benefit.

During the fourth week there was marked improvement in the stumps and in the general health. The patient, however, was decidedly strumous and suffered often from a general erythema which invaded the stumps as a troublesome complication; and besides there was a marked instability of tissue—frequently the mere pressure on the sides of the stumps, incidental to turning over in bed, had the peculiar effect of causing a recurrence of inflammation and sloughing.

At the end of the fifth week he was removed from the hospital to private rooms, when improvement was a little more rapid; still repair was necessarily slow, as the integument of the stumps had been mostly destroyed. The acid wash was now reduced in strength to two per cent.

At the end of the sixth week the bones were nearly covered over by granulations.

At the end of the seventh week the right stump had granulated over and was cicatrizing, and all the bones of the left stump, which had been exposed by disease, were well covered with granulations, except the first metatarsal, which was necrosed. On the 7th of February the patient was etherized and the diseased remnant of the first metatarsal bone removed. Repair followed, and on the 5th of March, a little over two and one half months after accident, patient was discharged with sound and useful stumps, and in good health.

NOTE.—He is now living at Eureka, California; wears an artificial right leg; and, I am informed, walks well.

CASE V.

Primary Synchronous Amputation of both Legs. Heart Clot, and Embolism of Left Femoral Artery. Erysipelas and Sloughing of Stumps. Recovery. Walks on Artificial Legs Without a Cane.

S. B. McKee, Jr., law student, aged twenty-one, jumped from the local train of the C. P. R. R. at Adeline Street, Oakland, a little before midnight, January 6th, 1882, and had both legs run over near the ankles. After the train had passed he crawled on his hands and knees to the sidewalk where he fainted from loss of blood, which had been excessive. He was soon discovered by a resident of the neighborhood

who skillfully arrested and prevented further hemorrhage by tying a handkerchief about each leg near the knee, and using a stick to wind and tighten it. He was then conveyed to his home, about one-fourth of a mile distant, where I soon visited him. He was unconscious and nearly pulseless from intense shock and excessive hemorrhage, though somewhat sensible to pain. External warmth was applied, and when he could be roused brandy was administered. For a half hour or more we waited in vain for reaction; he seemed to be sinking. The case was desperate and seemed almost hopeless, but he continued to live and we resolved to try the effect of surgery. A tourniquet was applied to each thigh, and at 1:30 A. M (January 7th), about an hour and a half after the accident, chloroform was administered by Dr. J. F. Foulkes (he preferring that to ether), and, assisted by that gentleman and Dr. N. L. Buck, I amputated the right leg at the upper part of middle third, making an antero-posterior skin flap operation; ligated bleeding vessels with silk; washed stump thoroughly with a strong solution of carbolic acid, about four per cent.; and passed sutures of silk close together, leaving several untied.

The patient yet lived, and I amputated the left leg at about the same place as the right, intentionally at the same point, but making here a *lateral* skin flap operation. Ligated vessels, washed and sutured stump as in the case of the right side. The anæsthetic was withdrawn and the stumps, in the order of amputation, were thoroughly washed out with the carbolized water, their sutures closed, and then enveloped in absorbent cotton soaked in the carbolized water, and closely bandaged—the bandages extended up the thighs. The patient was slow in rallying and did not speak for about two hours; but he improved, and at daybreak had passed the dangers of collapse. At 7 A. M., pulse 110, temperature 98°,

respiration 16; 11 A. M., pulse 125, temperature 100°, respiration 22; 1:30 P. M., pulse 128, temperature 101°, respiration 20; 6:30 P. M., pulse 120, temperature 99¾°, respiration 18. January 8th, 6 A. M. Patient feverish, skin hot and dry, and temperature 102¾°. Pulse 126, weak and irregular. Respiration labored and sighing, and, as compared with pulse, quite slow—18. Auscultated heart and detected a loud bellows murmur of a peculiar rustling character, occurring with and following the first sound, and loudest over the aortic valves. Dr. Foulkes also examined the heart, and we were both of the opinion that the sound was caused by stenosis of the aortic orifice from heart-clot, which had resulted from slow circulation incident to excessive hemorrhage and shock, and the prolonged use of chloroform. This opinion, I may remark, was strengthened by subsequent events.

Patient was eating ice and taking iced milk freely, and the stumps were being frequently wet with a weak solution of caborlic acid—about one per cent. During the afternoon he had a movement of the bowels, but it caused much prostration which was relieved by brandy. At evening he was quite restless and feverish (pulse 120, temperature 103°, respiration 21), and complained of pain. Small doses of tincture opii camph. and spir. ether comp. were administered with good effect.

January 9th, 7 A. M., pulse 115, temperature 103°; respiration 18. Patient sleeps longer—occasionally for an hour; sighs frequently; heart murmurs very loud, audible to the ear placed over clothing, but action of heart more regular. At 11 A. M., pulse 120, temperature 104½°, respiration 22. Removed dressings from stumps; both somewhat feverish, but looking well. Slight accumulation of bloody serum in left stump, which escaped on the removal of a suture. Re-

dressed stumps as before and ordered them to be kept constantly cool by means of carbolized ice-water. Ordered body to be frequently sponged with alcohol and water, and a two grain pill of sulphate of quinine every six hours. At 3 P. M. patient awoke from an hour's sleep quite delirious. Delirium lasted for about half an hour and was followed by a slight rigor. Gave him a teaspoonful of spir. ether comp., and turned him on his side, after which he improved. 7 P. M., temperature 102¾°. Bowels moved after enema.

January 10th, 7 A. M., pulse, 90; temperature, 102½°; respiration, 18. Another rigor during night; brandy and quinine increased; redressed stumps as before; slight suppuration in each; free drainage established by removal of sutures. Patient's temperature increased through the day, and at 3 P. M. was 104½°, but afterward decreased, and at 8 P. M. was 103°.

On the 11th, some improvement in heart's action was noted, though murmur remained. In other respects patient about the same as day before. Temperature—A. M., 102½°; P. M., 103¾°.

On the 12th patient began to suffer from frequent slight rigors, or general nervous tremors, and at 3 P. M. his temperature was 105°, without any marked increase of pulse or respiration. The stumps were being treated with thorough antiseptic precautions (fresh oakum having been added to the ordinary dressing as a catchment for discharge), and though suppuration had become quite free, the discharge was sweet, and the drainage perfect. The cause of the rigors seemed to be in the circulation, and to proceed from cardiac disturbance. The action of the heart was more or less irregular, and at times fluttering, and the murmur, though somewhat less marked, was yet distinct. Ordered one drop of tr. aconit. rad., with fifteen drops of spir. ether nit., and one-half drachm

of spir. ether comp. every hour. It quieted patient in a marked degree, and by evening his heart was beating more regularly, and his temperature was reduced to 102¼°.

The 13th was rather a better day for patient, though he had several nervous tremors—the latter coming on usually while he was lying on his back, and usually subsiding after changing position. Highest temperature, 104°. Quinine and brandy continued with same regularity, and the solution (aconit., etc) given when pulse became irregular. Patient's bowels had been torpid, and he had taken a dose of haustus nigrum, which operated.

On the 14th, the temperature remained at about 102° throughout the day; heart's action improved somewhat, and nervousness diminished. The stumps now began to slough. Most of the remaining sutures were removed and the strength of the carbolized wash was increased to four per cent.

January 15th, patient better; temperature, A. M., 101°; P. M., 102½°.

January 16th, morning temperature, 102½°; evening temperature, 102¾°. Patient complained of fatigue, and was restless. Upon being turned on left side had a violent nervous tremor and jerking of left leg, which continued for several minutes, but ceased upon the leg being held firmly for a time to the bed. Stumps sloughing considerably, but process limited to the skin, the deeper tissues looking well. There was considerable redness and inflammation of the stump, and this was supposed to be the exciting cause of the trembling and jerking referred to. The ligatures now began to come away. The dressings were ordered to be wet constantly with carbolized ice water.

January 17th, morning temperature, 101°; evening temperature, 103°, Patient unusually restless, and suffering much from nervous agitation of left leg. This agitation ap-

peared to be relieved somewhat by small doses of bromide of camphor. The left stump looked better, but there was a blush about the right stump and an erysipelatous redness just above the right knee. The sloughs of both stumps were beginning to separate. Patient continued to take small doses of quinine regularly, and brandy occasionally, and was now given in addition thereto fifteen drops of tr. chlorate of iron every four hours.

January 18th, temperature, A. M., 102°; P. M., 103½°. During high fever the sedative was still given, and with good effect, reducing temperature and quieting heart's action, which, though still irregular at times, was yet improving, and with this improvement the murmur was becoming less distinct. The paroxysms of nervous agitation of left leg had now become less frequent and pronounced, but patient was now suffering from slight tremulousness of both legs, which appeared to be excited by movement.

January 19th, less fever; temperature ranging from 100° to 102¾°. Stumps looking well, except for an increased redness of right. Last ligature came away; suppuration free; sloughs cast off, causing a loss of half of the skin flaps, but the remaining tissues looking healthy and the bones already well covered in by deep repair. Strength of carbolized wash somewhat reduced. Patient still subject to paroxysms of trembling of limbs, and jerks left leg frequently during sleep.

January 20th and 21st, improving; temperature ranging from 100° to 102¼°.

January 22d, constipation; temperature at evening, 103°; cathartic given and movement secure.

January 23d, morning temperaature only 99½°, but at evening, temperature rose to 103½°, without apparent cause, though the erysipelatous redness of right leg had spread to-

wards the hip; yet in the meantime it had faded below. Cold cloths were applied to the erysipelatous skin, and the part was brushed with tincture of iron and glycerine. Patient continued to improve in strength and appearance, though occasional irregularity of the heart, accompanied by a distinct bellows murmur, and frequent general and local nervous disturbances continued as complications; and besides, fluctuations of temperature continued to occur without assignable cause.

On the 24th, the temperature ranged from 102° to 104°; on the 25th, from 99½° to 103½°; on the 26th, from 98¾° to 103¾°; and on the 27th, 99½° to 102½°.

At the last date patient had a slight rigor. From this time until February 7th, a period of eleven days, the daily range of temperature was lower, varying from 98¾° to 99½°, A. M., and from 99½° to 100½°, P. M. During this period there was some general improvement in the patient's condition. The heart's action became regular and the murmur disappeared, but patient began to cough a little, and had occasional slight rigors; and infarction of the lung from emboli derived from the right side of the heart was inferred, and Fellows' syr. of hypophosphites was ordered. His lower extremities continued to twitch violently at times, but the disturbance invariably ceased upon the legs being firmly grasped by the nurse, and the patient was already acquiring some voluntary control over the condition through the exercise of his muscles.

On February 7th, the evening temperature was a little higher than usual, and on the following morning it was 101°; rigors continued.

On February 9th, the evening temperature was 102½°, and patient had a decided rigor, and complained of a cold feeling in left thigh and leg, and of soreness at the left groin. Upon examination it was found that the entire limb was perceptibly

larger, cooler and paler than the right, that there was considerable tenderness on pressure over and above Poupart's ligament, and that the pulsation of the femoral artery was only just perceptible. Embolism of the external illiac artery near the commencement of the femoral was diagnosed. Oleate of mercury with morphia was rubbed well into the skin at the groin, and the entire limb except the end of the stump was enveloped in cotton, over which a flannel roller was snugly applied. The limb was raised on a pillow, which position relieved the pain at the groin. The syr. of hypophosphites was continued, and iodide of potassium in combination with tr. of cinchona and carbonate of ammonia was ordered.

February 10th. Frequent rigors. Evening temperature, 103½°.

February 11th. Patient better. Evening temperature, 102½°. Patient continued to improve. The highest temperature on the 12th, 102°; 13th, 101°; 14th, 100½°. A careful examination now showed that the region of tenderness had shifted from the groin to the vessels below in scarpas triangle, and most marked at the origin of the profunda femoris, where a knotty induration of the size of a small peanut was discovered. From this point upward, the femoral artery felt hard, and the pulsation within was very weak—not one-fourth part as strong as that in the right femoral. Under the treatment indicated—oleate of mercury and cotton compress locally, and syrup of hypophosphites, iodide of potassium and carbonate of ammonia internally, the rigors gradually ceased, and patient otherwise improved. Maximum temperature on the 15th, 100°; 16th, 99°; 17th, 99¾°; 18th, 99½°; 19th, 98¾; and thereafter normal. The induration and tenderness of femoral artery gradually diminished and finally disappeared, and as it did so the pulsation became stronger, though remaining compara-

tively feeble for several weeks. The erysipelas of the right thigh spread to the hip and buttox, disappearing as it advanced, though reappearing at the thigh every few days, apparently in consequence of chafing or local irritation. It was very annoying to the patient, and a threatening complication. It persisted to the end of the case; and even afterward, for several weeks, showing itself whenever patient ate a very hearty meal or drank a glass of wine; but it was at all times thoroughly controllable by tincture muriate of iron, a few doses of which invariably caused it to vanish. The hacking cough became quite troublesome about the time of the recovery of the femoral artery, and the lungs were frequently examined for signs of lobular pneumonia, for the association of embolism and rigors had suggested the possibility of pyæmic infarction, but a few doses of acetate of ammonia, with syrup of tolu and extract of licorice, sufficied to dispel it.

At the end of the seventh week patient was thoroughly convalescent. The stumps were healing well. The loss of skin by sloughing had been so great that only a few irregular points of the original flaps had been saved, but these were utilized. By means of strips of adhesive plaster they were brought towards the center, serving a stable framework for the extension of cicatricial tissue, and limiting the amount of such tissue. The use of adhesive straps not only served to hasten and perfect repair, but, in connection with compresses and bandaging, enabled me to guide the process in the formation of the stumps.

The patient continued to do well in every respect, and at the end of the tenth week, cicatrization of the left stump was complete, and the right stump was healing over rapidly. In another week the right stump was healed up to a space about one-half inch in diameter; this space gradually diminished in size until it was not more than one-fourth of an inch across

and then it became hollowed out, and finally deepened into a sinus; and while this was occurring sensitiveness, on pressure over the end of the fibula, developed. The sinus was kept open by tents, and on several occasions was enlarged by the knife. Though probed frequently, no bone was felt until May 1st, when a loose fragment was detected near the end of the fibula. This discovery, together with the sensitiveness referred to, led to a diagnosis of necrosis of the end of the fibula; for about a week the case was treated conservatively, but there being no improvement the patient was etherized by Dr. H. T. Legler, and I made a very free incision at the site of the sinus exposing the fibula. The latter was found to be perfectly sound, but close to its inner side, lying between it and the tibia, were two small fragments of bone which were readily removed. One of these bore evidence of having come from the anterior part of the end of the tibia. A slight dissection exposed the end of the tibia which, though perfectly sound, was rounded anteriorly—nature having reperformed the amputation by the exfoliation and casting aside of the bony fragments. The parts were thoroughly washed with a strong solution of carbolic acid. The wound was closed by silk sutures and dressed with compress of carbolized cotton, a small rubber drainage tube having been left in the old sinus. The wound healed rapidly, the drainage tube being shortened at each daily dressing, and on the 31st of May, about four and a half months after the accident, patient was discharged, with both stumps sound and well formed, and in good general health.

REMARKS.—The protractedness of this case was of some advantage to the patient, inasmuch as it prevented him from contracting sensitiveness of the stumps and otherwise injuring them by premature use, and enabled me to guide the tissue repair to results as perfect as was obtainable under the

circumstances. The stumps are of nearly equal length—the right being five and three-quarters and the left six inches below the knee. This practical equality in the length of the two stumps is thought to afford some advantage in walking. The right stump is somewhat broader and more compact than the left, the skin of the latter being rather close anteriorly and quite redundant posteriorly. This difference in the two stumps is due to the difference in the formation of the flaps—antero-posterior in the right, and lateral in the left. As illustrated here, and the conditions were the same in each stump, lateral flaps favor early repair, but antero-posterior flaps make better stumps. The patient has now been about for several months on artificial legs (Marks' make) walking a mile or more each day. He can walk without a cane, and his gait is less awkward than most men who wear but one artificial leg.

GENERAL REMARKS.

STATISTICS, SHOCK, ETC.

Surgical writers all speak of successful synchronous double amputation of the extremeties as extremely rare. The foregoing cases are the only cases of the kind I have dealt with; and here we have four recoveries and one death. So far as my reading goes, this success is unparalleled; yet it is still greater than thus represented, as the operation in Case I—case referred to as fatal—may fairly be spoken of as successful, inasmuch as the patient survived and recovered from all the principal dangers, such as shock, hemorrhage, and the amputations proper, and lived eleven days to succumb to

other causes. This case, however, I did not treat. The other cases I not only operated upon, but treated to the end, and they are all living and all walking on artificial limbs.

Besides a few isolated cases in various parts of the world, briefly referred to in text-books on surgery, the only statistics on synchronous double amputation I have been able to find, are submitted by Professor John Ashurst, Jr., of cases occurring in his own practice, in his article on Amputation, in the new *International Encyclopedia of Surgery, Volume 1, page 592.** I find recorded here nine cases of double amputation on account of injury (crush)—only nine cases analagous to mine. Of these, two recovered and seven died. One of the two that recovered—Case VI, "amputation at right hip joint and of left leg at middle"—is claimed by the writer to be the only successful case of the kind on record, and doubtless justly so, and was, I will admit, a graver case than any of mine, though in my list it will be seen that Cases II and III were very nearly as severe. Figuring on the known rates of mortality in single amputations, in the absence of known rates for double amputations, adding the rate of one amputation to that of the other, on the assumption that the severity of like double crush and amputation will be twice as great as single crush and amputation, it will be found that the success of Professor Ashurst, in saving two out of nine cases, is above the estimated average. On this basis, taking the statistics in single amputations (nothing on double) in *Gross' Surgery, Edition 1872, page 552*, I find that an average estimate of the mortality of such cases as mine would give probable chances of recovery about as follows: As in Case I, one recovery in three cases; Case II, one in five; Case III,

* Since this paper was submitted, another volume of the SURGICAL HISTORY OF THE WAR OF THE REBELLION has been issued, and contains a brief record of a number of successful double amputations; but they were all on account of gunshot injuries.

one in six; Case IV, one in three; Case V, one in three; or, a total average chance of recovery for each case of one in four.

As in the above estimate, the greater shock of railroad injuries over that of gun-shot and most other injuries is not represented; it is possible, and I predict that the statistics of the future will show, that the mortality in double amputations for railroad crush will be considerably more than seventy-five per cent. The exceptional severity of railroad injuries has been pointed out by Erichsen and others.

The concussion or shock of an injury seems to depend chiefly upon the nature of the impingement. The shock of a bullet, for example, is comparatively insignificant to that of a cannon ball or the ponderous crush of a locomotive. Generally speaking, the greater the mass of the impinging body the greater the shock; for example, a bullet of high velocity striking a window pane simply perforates it, while a blow from a hammer, of less velocity but greater weight, transmits vibrations to the whole pane which shiver it to pieces. In railroad crush, shock is by far the more dangerous factor. The danger incident to amputation itself in such cases is probably very slight, if, indeed, it be not wholly offset by the immediate advantage resulting from a severance of injured parts.

In secondary amputation for disease there is always shock; but in amputation for railroad crush the shock of operation is rarely appreciable. It is drowned, as it were, by the shock of injury; and the reason for this difference is evident, for in the former case the shock incident to ablation follows the knife, while in the latter the shock of ablation, or worse than ablation—avulsion or crush, originates with the injury, is persistent, and, according to my experience, is very rarely dissipated until after the use of the

knife. The shock of the knife, here, is like the shock of glad tidings to a person overwhelmed by grief; and the relief obtained by the separation of crushed tissues may be likened to the alleviation of morbid mental impressions, induced by the severance of relations associated with the cause. From these several considerations it follows: that if a person with crush of an extremity be not operated on during shock and yet live, he must incur still greater danger by delay, by having to overcome all the agony, and the prolongation of the shock effects, occasioned by the retention and continued association of mutilated parts; and then, with irritated nerve centers-morbidly sensitive to impressions of injury, submit to the operation of amputation.

The teaching that has been handed down to us from one writer to another, that we should wait for reaction from shock before making amputation, is in my opinion, an hereditary error. My experience warrants the belief that persons with crush of one or more extremities are more apt to die from shock alone, than from shock and amputation; or, in other words, that the surgeon who waits in such cases for complete reaction will generally be disappointed; while he who operates early, or during shock, will usually have the satisfaction, at least, of seeing his patient survive the immediate effects of injury.

In nearly every one of my successful cases of amputation (about seventy-five) the probability of recovery from shock at the time of operation seemed exceedingly small, and in every one of the five cases here reported, reaction from shock seemed almost impossible. But these cases last mentioned did react; and is not this circumstance a somewhat convincing proof of the impropriety of delay; and is not the history of Case I, with the immediate and perfect reaction from collapse upon the removal of injured parts, a striking illustration that the im-

pression of shock upon the organism is maintained by the presence of such parts? Though the doctrine, not to amputate during shock, is maintained in our hand-books of surgery, and is a convenient doctrine for the timid surgeon, who would sooner see his patient expire serenely in bed than take the risk of his dying on the operating table and be charged with recklessness, etc., it is not based on experience; is not supported by statistical data.

Statistics on the relative success of primary and secondary amputations in traumatic cases, or cases of railroad crush—for we are speaking of injuries accompanied by the greatest degree of shock—are not sufficient; for, on the one hand, the patient who fully recovers from shock and lives for some days before being operated on, may be considered a safe subject to deal with, while the average patient operated upon immediately after injury may be presumed to have either greater shock, or less resistance. What we want is a record of the relative mortality between cases of shock from crush, operated on before reaction, and like cases, where the doctrine of waiting for reaction is applied, whether operated upon or not. But statistics on the doctrinal side will probably not appear very soon, for the disciples of the dogma of delay will not father their cases of shock that die before reaction, though they may wait through a whole night or day, just as kind hearted physicians have been known to prescribe liniments for dislocated joints, and wait for weeks for nature to do the surgery, and then send the patient to the springs.

HEMORRHAGE.

In most cases of railroad crush the hemorrhage is considerable, and in many cases, if not speedily controlled, will prove fatal. The occurrence of syncope from hemorrhage is a serious complication, pointing to a slowing of the circulation,

which may end in stasis and heart clot. The occurrence of the latter, however, may alone result from the paralyzing influence of shock upon the heart. But the occurrence of heart clot, though probably almost always fatal, is not necessarily so, as shown in Case V. A moderate loss of blood does not seem to interfere in any way with recovery, and patients frequently withstand great losses of blood without apparent injury. In all of my cases of excessive hemorrhage from crush, where recovery followed, except Case V, here reported, no complication ensued that could fairly be attributed to loss of blood; while on the other hand, in many cases where there was but little if any hemorrhage at the time of injury and amputation, troublesome complications of hyperæmia and excessive vascularity occurred, which seemed to result from intra-vascular pressure, caused by forced retention within the body of an excess of blood over the requirements after amputation. Where no hemorrhage occurs, it seems reasonable that the blood contained in a limb to be amputated, will not be required after amputation, and that in such a case the use of Esmarck's bandage in forcing the blood of the extremity back into the general circulation, would do positive harm; and my experience shows that in other cases the compression of an artery by an assistant, or the tourniquet, is a sufficient safeguard.

CONSERVATIVE SURGERY, SLOUGHING, ETC.

In railroad crush of the extremities, the tissues are usually contused higher up than they appear to be at first, and for this reason it is better to amputate high where practicable; and in crush at the ankle joint, for example, it is always practicable to go well up to the middle of the leg, or above this point, for a leg stump of from six to eight inches is the ideal length for the application of an artificial limb, and a three, or

even a two inch stump (see Case III) is better than a long stump—amputation just above the ankle joint, for example. Just here I may say that I have made secondary amputation of the leg, principally on account of stumps being too long for artificial limbs, in two cases, successfully, where amputatation had been previously performed by other surgeons.

Flaps of contused skin are sure to slough, and are extremely liable to become gangrenous. To include in the covering of a stump any portion of contused skin or tissue, where it can be avoided, is therefore unjustifiable, for by so doing repair of the stump by first intention will be impossible, the result at best will be imperfect, the case will inevitably be prolonged, and secondary amputation may become necessary, and the life of the patient otherwise placed in jeopardy. The dangers and difficulties involved are aptly illustrated in the foot amputations in Cases II and V. In the former the effort to save a portion of the foot resulted in the loss of nearly the whole extremity, and seriously compromised the entire existence; and in the latter the effort was successful, though it nearly cost the patient's life. But in both of these cases the operation was thought to be justifiable, on the ground that an individual with one leg off can afford to take greater risk at saving a part of an injured foot, than a person with one perfect and entire lower extremity. Still, conservative surgery may be carried far at the foot, since it is more often successful here than elsewhere, except at the hand, and for the further reason that, in the event of failure, amputation can usually be performed at the leg so as to give a stump of useful length.

Amputation of the foot, however, should never, in my judgment, be made above the tarso-metatarsal articulation. An artificial leg is a more graceful and a more useful appendage than any Chopart or Syme stump I have ever seen, and

a Pirigoff stump is neither useful nor ornamental. All things being equal, the danger of amputation of the leg is of course somewhat greater than that of the foot, but in crush, things are not equal, and amputation, through contused and lacerated tissues at the foot, is obviously more dangerous, taking the case in its entirety, than that through perfectly sound tissues at the leg. However, while the saving of life is probably a paramount duty, the saving and spoiling of a life at the same time must be considered a very questionable procedure. To amputate, therefore, at a point which promises to give the best ultimate result—the greatest degree of usefulness, will prove to be the best surgery; for then, if your patient lives, he will be sure to praise you, and if he dies, his curses cannot seriously affect your reputation.

Sloughing and putrefaction are much more likely to occur in double than single amputation, or in amputation of the thigh than in amputation of the leg; or, in other words, the greater the solution of continuity, the greater the liability to disintegration and death of wounded tissues. But in double amputation, as in dual other wounds of like magnitude in the same person, it will generally be found that one wound will heal more rapidly than the other. It may not always be the best appearing wound at the start which ultimately does the best; for while both wounds usually slough if one does, one of them may begin to slough first and emerge from the process so far in advance of the other as to heal first. On the other hand, the tone of the system may become so improved during the period of sloughing in the first stump affected, as to limit, materially, the process in the other stump and enable the latter to heal first. Aside from the danger of local infection of one stump by the other through accident, disease of one stump superinduces disease in the other by an impairment of vitality in the tissues through systemic infection.

The disturbance in one stump, whatever it may be—from irritation to gangrene, may react injuriously upon the other. This play of morbid reaction is an element of injury not possible in single amputation. In double amputation there is twice as much pain and irritation as in single amputation; and it is conceivable that every twinge of pain, and every thrill of irritation, mnst make a definite morbid impress upon the organism, and aid in the lowering of vitality, and in the production of nervous and inflammatory phenomena, and assist in the determination of the display of such phenomena.

NOTE.—Two cases of "Hey's Amputation," on account of "railroad crush," were exhibited at the meeting, illustrating, by extensive cicatrices, the great extent to which conservative surgery of the foot may be successfully carried; and by perfect action of muscles—particularly of tibialis anticus, and by perfect walking, the great advantage of this operation.

TREATMENT OF PULMONARY BASIC CAVITIES.

BY HENRY WORTHINGTON, M. D.

According to the latest clinical observations it has been found that a great variety of morbid processes are located at the base of the chest.

Bronchiectasis, abscess of the lung, empyema, gangrene, syphilitic disease, malignant growths of all kinds, abdominal perforations and hydatid disease are included in this category.

These observations consider only uncomplicated basic cavities, the result of tubercular or inflammatory processes.

And in the amplitude of statistical research these excavations at the base of the lung are no longer to be included among pathological curiosities. Certainly these morbid processes have received hitherto much less attention than they deserve, not only because they are frequently undiscovered, but also because they are commonly complicated with disease of the apex or other situations.

Of some three hundred and sixty cases of chronic pulmonary disease of which I have record, thirty-one are uncomplicated disease of the base, and of these twenty-eight constitute cavities.—in fact, frequent enough to demand some special attention, at least, with regard to treatment.

This is no single experience. Compare the leading hospital reports, and it is quite sufficient to confirm the fact that a fairly successful method of treatment becomes a *desid-*

eratum. This subject is perhaps well introduced by giving a brief history of two or three typical cases.

H. L. B., æt. 30. In April, 1866, while cracking a nut with his teeth, a small piece became lodged in the larynx. Not until the following October did he notice anything more than a slight hacking cough. But on October 12th, he suddenly expelled the fragment of nut, which was followed by a great quantity of offensive matter. The cough ceased for several weeks, at end of which time he had considerable pain in right side, about the infra-axillary region, accompanied by night sweats and fever. The patient lost flesh and strength, and until 1876 traveled extensively. Not until the Fall of '76 did he come to this State. Upon examination, in December, 1876, these were the distinctive symptoms of basic cavity:

Local depression was marked. Percussion gave dullness and increased resistance, with hollow, "cracked-pot" sounds. Vocal fremitus was marked about the circumference of the cavity, and metallic rales, with crepitus of various sizes and cavernous respiration. Such were the unmistakable signs. During the years between 1876 and 1882 he has lived in the mountains of San Diego County, and a recent examination elicits no more than a slight loss of resonance in the percussion note, and the least trace of dry rale at end of inspiration, with no prolongation of the expiratory sound. The cyrtometer registers very little depression. The constitutional symptoms have disappeared. In fact, it is only possible to affirm that cicatrization has taken place, and that recovery is well nigh complete.

A. J. H., æt. 34. Came here in 1875, after having been in various climates. There were undoubtedly signs of a cavity at the left base, anteriorly. The cough was constant and characteristic (a tussic cough with long-drawn inspira-

tions, like a "whoop") with copious purulent expectoration. The temperature ranged from 102° to 103½° every afternoon, with rapid pulse and hurried breathing. Emaciation was extreme, night-sweats excessive, and diarrhea exhausting.

Crackling rales, blowing respiration, enormously prolonged expiration with "key-note wail," and pectoriloquy were disguishable by the stethoscope, and very greatly increased resistance upon percussion. Under treatment the patient has increased in weight, the constitutional symptoms are gone, and the physical signs of cavity are negative. In fine, a progressive convalescence is established, and it is but fair to claim a good recovery.

C. L. R., æt. 30. This gentleman, whose family history is very bad (his mother, two brothers, and two sisters having died of phthisis), and who had repeated small hemorrhages before coming here, presented all the characteristic symptoms of tubercular disease. There was no evidence of any part of the lung being involved, except at the inferior angle of the right scapula, where could be heard the "key-note wail" and the corresponding echo, musical rales, almost amphoric, and the *Pot-de-fele* sound. Hectic fever and night-sweats were constant, and there was extreme prostration.

The effect of treatment, and a continued residence at a moderate altitude, gave a marvelous result. The respiratory sounds are fairly normal, and the percussion note hyper-resonant; nor have hectic or night-sweats reappeared. An active business life at present date has made no unfavorable change in this remarkably satisfactory result.

The treatment in most of the cases consisted in the use of the respirator, constantly, the internal administration of corrosive sublimate as a tonic and alterative, muriate of ammonia as an expectorant, chloral hydrate as a counter-irritant, and a suitable atmosphere at a proper altitude. The mercury

may be given in 1–32 grain doses three times a day, and as an antiseptic tonic, in these doses non-irritating, the effect is often magical. In extreme cases, many times, these doses will be tolerated with the happiest result. To assist in dislodging the liquid, oftentimes nasty caseous contents of a cavity, nothing can supersede the old-time remedy, muriate of ammonia. In seven-grain doses every four hours, or in two-grain doses repeated every half hour, it stands preëminent among the expectorants. Pain is generally present, sometimes only annoying, oftener very severe, and which necessitates some form of relief. By rubbing up two drachms of chloral hydrate with ten grains of gum camphor, a thin fluid is obtained, which, applied to the skin and immediately covered by oil-silk, very quickly and painlessly raises a blister. The relief by this mode of counter-irritation is frequently prompt and permanent, and its use is certainly more satisfactory than the old cautharidal applications. The continuous use of the respirator is an admirable and a rational method of antisepticism of the lung. Its effect is remarkable in excavations at the base, for while the sickening odor coming from apical cavities is rarely present, the foul emanations from a basic cavity is generally offensive enough, and the fetor must be destroyed. Ten drops of oil of eucalyptus does this effectually. It is non-irritating, not disagreeable to the patient, and a powerful antiseptic. The ætherial tincture of iodine with creosote, is more irritating, but very satisfactory, especially Coghlan's formula. Disturbing the contents of a cavity by changing position will frequently induce coughing, and enable the patient to dislodge and expel accumulated purulent matter.

While these brief suggestions as to medication are important factors in the treatment of these morbid processes, a suitable climate is most necessary to fulfil the indications of a

cure. And it is here that a proper air offers the greatest inducements to success in uncomplicated basic cavities. While ascribing the general improvement of the patient to the dry form of antiseptic atmosphere found at a proper altitude, and to the sun's powerful influence, any arrest in the progress of the disease must be assigned not only to the method of medication, but to the effect on the lungs of rarified air. This condition of air, by inducing an artificial emphysema, causes an expansion of the inferior part of the thorax, at the same time opposing a barrier to the encroachment of further infective processes.

The very germlessness (as far as known) of the air at a proper altitude probably serves to prevent the inter-current inflammatory attacks which so often increase the phthisical state. Many times this increased expansion of the chest, induced by breathing rarified air, brings about a change in the percussion note from dullness to resonance and hyper-resonance. This is, of course, an immense advantage, as in excavating processes at the base there is contraction of the inferior portions of the thorax, and continued residence in a moderate altitude causes great development of the lung.

In fact, in nearly all the cases examined, there was an increase in the cyrtometric and other measurements of the chest, and the physical signs denoted emphysematous development around the old diseased lung tissue, and hypertrophy of the healthy lung.

These conditions of air and altitude, associated with equability and warmth, may be found throughout Southern California. More especially so may be mentioned in this connection the mountain cañons of Los Angeles and the adjoining counties. The San Gabriel range, the San Bernardino, San Jacinto and Julian mountains, and the pineries of Sierra Polomar in San Diego County, possess local climates of their own—an

atmosphere rarified sufficiently, equable, properly dry, or moderately moist and warm. The extreme ideal aseptic climate is found only at altitudes in an equatiorial latitude, but in our southern climate there is relatively moderate thermometrical reading, and at a moderate altitude, as found in our mountain cañons, sunshine and sufficient dryness coupled with equality of temperature.

To sum up and close these brief notes, it may be affirmed: That basic cavities, excluding complications in other situations, constitute a considerable percentage of pulmonary disease, and are curable.

That their cure may with reason be said to be probable in a properly selected climate, and with some medication.

That the mountains and highest foot-hills of Southern California furnish suitable climates, as attested by numbers of actual cures.

That the medication may consist of the use of bichloride of mercury, in 32d grain doses, as an antiseptic tonic and alterative, chloral hydrate as a counter-irritant, ammonia muriate as an expectorant, and the continuous use of the respirator.

THE TREATMENT OF CHRONIC PELVIC CELLULITIS IN WOMEN.

BY JOHN WAGNER, M. D.

Possibly there is no one other factor so militating against the successful treatment of uterine diseases as the existence of cellulitis. It is the one thing above all others with which the gynecologist has to contend. He encounters it on every hand, scarcely a case presenting itself in which at least a trace does not exist. To get rid of this menacing danger always hovering over him, is his one great object. Having once had an existence, he knows how easily it may be again relighted. Although I have spoken of it as a chronic inflammation, more than likely such a state does not actually exist. Certainly we do not have, so far as we can discover, the attendant symptoms of an inflammation, namely: redness and swelling, with heat and pain. An inflammation of any one part must necessarily run its course in a comparatively short time. It is a state of activity, and not one of repose, soon ending in resolution, or death of the part attacked. But the consequences of an inflammation may become chronic, in that they may last indefinitely. It is, then, to the results of an acute cellulitis, other than that of an abscess, which I wish to apply the name of chronic cellulitis. The name is chosen rather as one of convenience than indicating the pathology, since these results may be manifold. Let there be once an inflammation of the pelvic connective tissue, and although your patient escape an

abscess, she is more or less damaged. No case ends in complete resolution; in the sense that a trace of its existence dose not remain—she will be rendered more liable to future attacks than though the first had not been. These results indicating most certainly that which has gone before, may consist in more or less effusion of serum, having no tendency to further absorption; a thickening of the tissue, either general, or, as is more common, confined to spots; bands of cicatricial tissue, causing displacements of the uterus; and one other and very important result, both on account of its commonness and the influence it has over the nutrition of the uterus, is the impairment of the circulation of the blood in the vessels ramifying so bounteously throughout the pelvic connective tissue.

Dr. Thomas Addis Emmet says of this distribution of blood vessels: "That in no other portion of the body, within the same extent of space, can be found the same number of blood vessels or nerves as are distributed to the pelvic connective tissue. These vessels are doubled upon themselves to an almost incredible degree, so that they can be put upon the stretch, or their calibre lessened by the traction from pregnancy or uterine displacement. This provision, however, is a source of weakness should local nutrition become impaired, since a great portion of the blood contained in a woman's body may become almost stagnant in the vessels of the pelvis." This impairment is brought about very often by repeated attacks of inflammation of the tissue. It destroys the contractility of the blood vessels, particularly of the veins, and hence allows a passive congestion. In time the veins become varicose; the blood, not being returned by the veins as fast as the arteries supply it, becomes slower and slower, until finally, there is a time when the uterus partakes of this passive congestion—then follows its enlargement and leucorrhea. In making a physical examination, these latent

conditions are very apt to be overlooked, or if noticed, do not receive their just share of importance. The attention of the examiner is wholly drawn to the uterus, this organ being the objective point of most examinations. An eroded condition of the os or a leucorrhœa is evidence sufficient for all the symptoms of their patient, whereas these are only symptoms of faulty nutrition.

The broad ligament should be carefully examined bimanually for any thickening; also the utero-sacral ligaments, it being usually in these ligaments that we shall find its evidence. Any painful spot connected with thickening should receive our attention. The mobility of the uterus should be particularly noticed, and whether it is drawn to one side or the other. Having satisfied ourselves that any one or all of these conditions exist, we may be sure that there has been cellulitis, and under such circumstances, until we have gotten rid by proper treatment of the pain and soreness, which possibly can only be elicited by pressure with the fingers, any attempt to correct the position of the uterus, or interfere in any way with its cavity, will most likely light afresh the cellulitis. In the treatment then of these conditions, we will find the discharge from the uterus to diminish or cease, and most cases of erosion of the cervix, not due to laceration, to heal without direct medication to them. How then shall we manage these results in accordance with what has been said? Our first and great object will be to restore the pelvic circulation. The first step towards this object is to improve the action of the bowels, which are almost always in a sluggish state. A good dose of calomel to be followed by castor oil, cannot for this purpose be improved upon, after which any gentle laxative, a teaspoonful of castor oil at bedtime, is efficient, having also a special action on the pelvic circulation. The next most important means at our command is the use

of large vaginal injections of hot water once or twice a day. These are to be given invariably with the patient lying on her back, the hips elevated and head low. I know of no plan by which this can be so effectually accomplished as by the use of a large tin bed pan, made high behind, instead of tapering off as in the common ones. Not less than one gallon of water, as hot as can be borne by the patient, should be used each time. A Davidson's, or other similar syringe, should be used, the patient lying with her hips upon this pan to catch the water as it flows from the vagina. With the action of hot water upon the blood vessels, you are all famliar. In these cases it causes contraction of the blood vessels, increasing thereby the circulation. In order that the water should accomplish the greatest amount of good, it is necessary that it should reach every part of the vagina. In certain cases this cannot be accomplished, as where the perineum is lacerated or the ostium vaginæ unnaturally large, without directing your patient to bring together the labia with one hand, pressing the syringe well in front. By so doing the vagina may be made to contain at least a pint of water, effectually distending it.

Painting the vaginal roof, two or three times a week, with equal parts of tr. iodine and glycerine will aid in diminishing the sensitiveness and do something towards producing absorption. After getting your patient to a certain stage, all progress by these means will seem to come to a stand still. We will now dispense with the hot water injections and make use of another plan of treatment, having, though, the same aim in view, of improving the circulation, but, in addition, one which will more directly cause absorption. It is well known that the swelling and stiffness remaining in joints, particularly of the knee, after an attack of inflammation, is much benefited by elastic pressure—the pressure giving tone

to the vessels, quickening the circulation, and necessarily follows absorption of the products of the inflammation.

Can we not apply this principle to the treatment of a similar condition in the pelvic connective tissue? Whilst we are not able to use the rubber bandage, we can use as a substitute, cotton or nicely prepared oakum. Packing the vagina with either of these substances will afford a good elastic pressure. At the same time it keeps the uterus elevated, a matter of no small importance. This plan has been put into practice to a considerable extent, during the past year, in the State Woman's Hospital of this city, the details of which are the following: first prepare an ointment of iodoform, sixty grains, balsam peru, three drachms, vaselin, one-half ounce. Place your patient in Sims', or knee chest position, or, if you have no assistant, on the back, using a bivalve speculum, but having the blades to separate laterally instead of antero-posteriorly. Prepare a piece of absorbent cotton somewhat smaller than the palm of the hand, saturate it with glycerine, then spread over one of its surfaces the ointment. With a pair of forceps place this over the cervix and well up behind; now have a number of small balls of dry cotton, the size of a common marble and pack these well in, filling the vagina about half full. The force or firmness of the packlng is to be regulated according to the sensitiveness of the parts. After one packing you can gauge your case. If it is well done it will give comfort and a sense of support not otherwise attainable. This is allowed to stay from three to five days. After removing it, sponge out the vagina with carbolized water and repack. This can be done for several packings in succession, and then intermitted, since it will in time cause an irritation of the vagina.

If we have not succeeded after a patient trial by thes means, in producing absorption of the bands binding the uterus in

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July	75.7	71.1	January	49.0	54.1
August	73.0	70.0	February	51.0	54.6
September	72.8	60.8	March	56.5	55.8
October	62.7	53.4	April	58.8	58.0
November	53.9	52.1	May	66.4	62.0
December	47.8	55.3	June	73.0	64.7

"Number of days at Sacramento with temperature above 90°, 55; highest temperature recorded, 103°.

"Number of days at Los Angeles with temperature above 90°, 4; highest temperature recorded, 93°.

HUMIDITY.

Month.	Sacramento.	Los Angeles.	Month.	Sacramento.	Los Angeles.
July	43.0	61.8	January	79.0	61.0
August	46.0	64.5	February	80.0	69.3
September	43.0	62.1	March	74.0	72.9
October	59.0	67.4	April	65.0	69.8
November	72.0	46.5	May	57.0	70.4
December	74.0	56.4	June	53.0	72.0

Annual mean—Sacramento, 61.3°; Los Angeles, 64.5°.

AVERAGE ANNUAL RAINFALL.

"Sacramento, 18 inches; Stockton, 16.8 inches; south end of San Joaquin Valley, 6.5 inches (these three measurements are taken from the official report of the State Engineer, 1880); Los Angeles, 17.97 inches (average for the last eight years, as shown by rain gauge kept by Mr. Ducommun, at Los Angeles.)

"A comparison of the foregoing tables shows Los Angeles to possess, as conrasted with Sacramento, an atmosphere warmer and drier in Winter, and cooler and moister in Summer, while the table of precipitation shows the average annual

unnatural position, I am of the opinion that in these old, tough cases, if we can produce an active congestion, one just verging upon, or even a slight inflammation of the tissue, and then control it, it will be the means of causing absorption of these bands. I have been led to this opinion by observing cases where nothing seemed to make further headway, and feeling the necessity of replacing a retroverted womb, have done so, with the result of causing an acute cellulitis. After subduing it, have found the uterus more mobile than previously. Whilst I would not advocate purposely producing a cellulitis of unlimited extent, I do think that by manipulations of these bands, putting them upon the stretch, and pushing the uterus in different directions, we can excite an inflammation short of harm and capable of doing much good. But there will still remain a certain per cent of cases, characterized by more or less persistent pain in the pelvis, to one or other side of the uterus, with thickening of the broad ligament, which nothing seems to permanently benefit. Then arises the question which Mr. Lawson Tait claims to have settled: Does not the seat of mischief lie in the fallopian tubes? If so, it must ever remain with the very few to be positive of this fact, at least sufficiently positive to say that their removal, as he claims, is the only treatment; that there remains no other resource.

CLIMATE AND DISEASES OF SOUTHERN CALIFORNIA.

BY J. P. WIDNEY, M. D.

The climate of Southern California, while in many respects similar to that of the northern portion of the State, is, in its relations to disease, in many respects dissimilar. The reasons for this may be traced to a variety of causes.

First—The more southern latitude brings with it necessarily a milder temperature.

Second—The eastward trend of the coast south of Point Concepcion deflects away from the shore-line the cold waters of the great Aleutian current which follows the land southward from Alaska. In its stead the shores are bathed by the warmer waters of a counter current setting northward along the coast of the Peninsula of Lower California.

Third—The corresponding trend of the Sierra, which, from its general north and south course here turns almost due east, raises a great mountain wall directly across the course of the northwest trade wind, which, cooled by its long course over the waters of the Arctic current, just mentioned, flows through the many breaks and passes of the Northern Coast Range and sweeps lengthwise of the Sacramento-San Joaquin plain and the parallel coast valleys. This is the wind which imparts the peculiar chill to a large portion of the California year. The east and west trend of the Sierra walls this wind out from Southern California. The valley systems of Cali-

fornia, also, in consequence of this change of direction in the mountain chains, stretch from east to west instead of from north to south, so that there is no long expanse, as in the upper portion of the State, for the clear sweep of a north wind.

Fourth—The Coast Range of Mountains, which in Northern California interposes a notable barrier between the sea-coast valleys and the interior, making a strongly marked difference in rainfall and temperature, sinks down to a mere geological rudiment in Southern California. This breaking down of the Coast Range throws the whole valley system of Southern California, known collectively as the Los Angeles country, open to the sea, making it practically a vast system of coast valleys, with the Sierra as a background; and it is to be classed with the Humboldt and Santa Cruz Counties in climate, but from the sheltering mountains and the more southerly latitude milder in temperature, and in extent upon an infinitely larger scale. About three thousand square miles of level valley land open out to the sea at this point. This breaking down of the outer range gives also a more equable climate, as the daily sea breeze, having free access to the whole country, tempers alike the cold of winter and the heat of summer; and for the same reason the winter rain current entering from the sea with no obstruction, affords a reliable rainfall.

I make the following extracts from an article entitled "Climatic Studies in Southern California," which I furnished for publication to *The Californian*, of November, 1880:

"The following tables, giving the temperature and humidity, month by month, of Sacramento and Los Angeles, are compiled from the last published annual report of the United States Signal Service:

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"Sacramento, 18 inches; Stockton, 16.8 inches; south end of San Joaquin Valley, 6.5 inches (these three measurements are taken from the official report of the State Engineer, 1880); Los Angeles, 17.97 inches (average for the last eight years, as shown by rain gauge kept by Mr. Ducommun, at Los Angeles.)

"A comparison of the foregoing tables shows Los Angeles to possess, as conrasted with Sacramento, an atmosphere warmer and drier in Winter, and cooler and moister in Summer, while the table of precipitation shows the average annual

rainfall, eighteen inches at Sacramento, diminishing as you go south, in accordance with the law already mentioned, to 16.8 at Stockton, and in the Tulare and Kern Valleys, still farther south, to only 6.5 inches. Yet at Los Angeles, in Southern California, it has suddenly risen again to 17.97 inches, almost the same as at Sacramento. The cause of this has already been explained in the first part of this article.

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"The daily sea breeze, only slightly obstructed by the low fragments of Coast Range, finds its way to all portions of the system of valleys, saving them from the excessive temperature and the rapid evaporation of the Sacramento and San Joaquin country. Winter flannels are only changed to a lighter summer flannel. In eleven years of residence at Los Angeles I doubt if I have worn a linen coat upon an average five days a year; many years I have not had one on at all.

"Another factor enters into the problem of the climate of Southern California. The influence of the Sonora summer's rain current is sensibly felt everywhere south of the Tehachapi Mountains.

"Rains are common in all the mountains of Southern California during the summer months, with a moist, cloudy air in the valleys. Three seasons in eleven years I have seen heavy rains of several hours duration, extending all over the valleys, in July and August. During these months of every year thunder storms often with vivid lightning can be seen, sometimes daily, following along the line of the mountain chains. These summer rains help in a measure to keep up the volume of water in the rivers for irrigation, while all over the valleys the moist air which the rain current brings is instrumental in materially checking evaporation. The summer has little of the harsh dryness of the climate in the northern

part of the State. The humidity of the atmosphere is shown by the great fleecy cumuli, which float slowly across the sky like the summer clouds in the Eastern States, and by a peculiar softness of air, resembling much the balmy mildness of the Mediterranean.

* * * * * * *

"The peculiarity of the physical character of the country which has been described, the practical obliteration of the Coast Range, and the facing of the high Sierra directly outward to the ocean, gives rise to one type of climate not elsewhere found in the State. It is not the climate of the Coast Range; neither is it the climate of the Sierra. It is a climate produced by giving the daily sea breeze of the Coast Range to the Sierra. It is a climate which can hardly be described. The peculiar charms of it must be felt to be understood.

"Along the base of the Sierra, back of Pasadena, on eastward, back of San Gabriel, past Cucamonga, with its noted vineyards, above Pomona and on beyond San Bernardino, growing warmer as it recedes eastward from the sea, is a belt of foothills above the fog line facing out toward the noonday sun, looking down across the plains, and the hills of the Coast Range, upon the warm southern sea, and yet fanned daily by an ocean breeze that has no harshness. I do not say that there is no more perfect climate than this belt affords, but I have never seen one. The Southern Pacific Railroad, upon its way to Arizona, skirts the foot of this belt for a hundred miles.

"This, however, is only of a number of climates developed. There are local peculiarities which one would not suspect until after actual residence. Along certain lines lie what might be called wind belts. These are caused by the breaks in the Coast Range of hills. The night fogs also are more apt to follow certain well defined courses; and in the Winter frost

has its sections of preference, while other portions of the country escape entirely. There is a varied choice of climates within a comparatively limited area. Within three hours by rail one may have the fresh air of the seaside at Santa Monica or San Pedro, with surf bathing and a temperature always cool, even in the warmest days of the Summer; or, passing inland, the grass lands and dairies of Compton and Westminster, or the corn lands of Los Nietos and the region about Anaheim; the milder but still essentially coast climate of Los Angeles City; then, passing within the line of the Coast Range, the still more sheltered San Gabriel Plains, where the orange best flourishes; the inland wheat fields of San Fernando Valley, resembling somewhat the climate of the great interior Valley of the San Joaquin; then the warmer raisin lands of Pomona and Riverside; the long fogless belt of the Sierra foothills; and beyond, the alfalfa lands of San Bernardino."

One other feature of the southern portion of the State, as contrasted with the north, is that the more perfect drainage resulting from the openness of the whole country to the sea exempts it from the marsh exhalations of any great overflowed tract, such as the tule fields of the lower Sacramento-San-Joaquin.

Still another feature peculiar to it is the existence, parallel to the coast line, and at a distance varying from twenty-five to fifty miles out at sea, of a chain of islands reaching from Santa Barbara to San Diego, which so shelter the long channel lying between them and the mainland as to afford a half inland navigation, and protect the land from much of the harshness of the sea air. Of the peculiar climate of these islands and their future value as health resorts, unlike anything else upon either the Atlantic or Pacific Coast, I have written more at length in the *Report of the State Board of Health*

for 1880–1, in an article entitled "The Southern California Channel Islands as Health Resorts."

A prominent army officer, whose duties in the Engineer's Department have kept him for years at the various seacoast points of California, said to me, speaking of the climate of San Pedro, on the mainland opposite Santa Catalina Island, and having much the same deculiarities: "It is the finest climate I have found in all these years upon the Pacific Coast."

Still another type of climate is that of the desert, hot, almost entirely devoid of moisture, with an elevation upon the Mohave of some two thousand feet above the sea level, and upon the Colorado of over three hundred feet below the sea. The importance of these climates in the treatment of such diseases as are benefited by dry heat, is only beginning to be understood.

The relation;hip of the climate to disease may in part be inferred from the foregoing description. There are no well marked endemic diseases. Malarial fevers are found only in certain localities, and generally of a mild type. Bronchitis, pneumonia, pleurisy, while occurring in scattered cases, are comparatively rare. Derangements of the liver, although probably more common than in the northern coast counties, are much less so than in the northern interior. Of dysentery the same may be said. Acute inflammatory rheumatism is a rare disease; the subacute form, more common; while that border land of pains half rheumatic, half neuragic in character, is here, as over the whole Pacific Coast, a marked feature in the region of poor humanity's infirmities. The diseases of city life—typhoid and diphtheria—are found here as elsewhere. Filth has its blood-money, which must be paid. Epidemics run their normal course.

For all classes of nervous affections wherein a soothing

rather than a stimulating climate is needed, this portion of the State possesses many advantages over Northern California. It belongs rather to the class of "lazy" climates. One sleeps well, and is rather satisfied to let the world run its predestinod course without trying to superintend it himself.

In almost the whole list of kidney and bladder troubles, where it is important to make the skin do double duty, and thus ease the strain upon the urinary organs, the hot, dry climate of the deserts offers many advantages. Both the Mohave and the Colorado Deserts are traversed by lines of railroads, but the accommodations for invalids at stations are poor. It is as yet an almost unworked field for the Sanitarians.

For the management of phthisis, and all cases of mere feebleness or delicacy of the constitution, the peculiar mildness of the climate is a feature of exceeding value. It renders possible an out-door life almost every day of the year. In the summer, invalids camp for months in the mountains, by the seaside, and across upon the channel islands. The influx of this class of persons, already very large, is increasing rapidly with each year. Large numbers are removing from Colorado and the Rocky Mountain Territories to this point. The accessibility of the whole country, together with the abundant and varied supply of fruits and vegetables, and the number of essentially different climates to be found within a comparatively limited area, will swell this influx year by year.

ALCOHOLISM.

BY J. GREY JEWELL, M. D.,

Resident Physician and Superintendent "Home for the Care of Inebriates," San Francisco.

MR. PRESIDENT, AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: During the past year I have attended over eight hundred cases of alcoholism at the "Home for the Care of the Inebriate," in this city. We dignify the disease by the name of alcoholism, but the general public call it drunkenness, and the patients inebriates, or drunkards, which are much more expressive terms. Inebriates, as a class, are the principal feeders of our insane asylums; and it is not too much to say that we have in California, and especially in San Francisco, more drunkenness in ratio to the population than has any other part of the civilized world. Hence we have more insane, for proof of which I refer you to the reports of the two large establishments at Stockton and Napa, both overflowing with insane people, and to the talk of building a third at Los Angeles.

INSANITY IS PRODUCED BY ALCOHOL.

Dr. Willetts, a distinguished English authority, very truly says, that "in a large majority of cases, insanity is either directly or indirectly the result of excessive drinking. *Dipsomania* is as true a type of insanity as *Pyromania* or *Kleptomania;* and, in many cases, the tendency to alcoholic

mania is an inheritance from a drunken ancestry." At the same time it should be remembered that all drunkards do not have attacks of *delirium tremens*. But when the disease becomes well established, and the patient *has* attacks of *delirium tremens*, then he is no longer a *sane* man, or a *safe* man, until he again becomes sober. He is one of the most pitiable of creatures—his nervous system is shattered, his perceptive faculties are clouded, his will power is lost, and he is unable, in the great majority of cases, to resist the terrible craving for drink.

INHERITANCE.

There is no doubt that *inheritance* has much to do with a thirst for strong drink, especially if we can bring the case down to a fine point, and find that the child was begotten during the time either parent was suffering from alcoholism. As an example of this theory, I have a well authenticated case of inherited inebriety now under treatment at the "Home"—a gentleman, the third son of his parents, who is sorely afflicted with alcoholism. He tells me that himself and younger brother (the fourth son) have always, almost from infancy, been too fond of liquors, while his two elder brothers are strong total abstinence men, and never touch liquor; they are also men of wealth, while the two younger, who are inebriates, are poor. He tells me that he has often heard his mother say of his father, that during the first five years of their married life, he (the father) did not use liquor in any way, and would not associate with men who did. But about the fifth year after their marriage, about the time the third son was begotten, the father had many business reverses, took to drink, and died, after being an habitual drunkard for several years.

CHRONIC ALCOHOLISM.

The class of chronic inebriates need medical care and

supervision as much as the insane. They require the treatment and restraint which only an asylum can give. They are an irresponsible class of society, and a very dangerous class—many murders and other terrible crimes being committed by chronic inebriates. Therefore, I say that "Homes," or asylums for the care of inebriates, like the one in this city, are a great blessing to any large community, and all honor should be given to the members of the "Dashaway Association" for establishing this one in San Francisco. To impress upon you the *necessity* of such asylums, I need only state that since August, 1859, there have been admitted to the "Home of Inebriates" in this city, over ten thousand patients, of all classes and conditions, old and young, male and female, paupers and millionaires. As young as sixteen, and as old as eighty. So great is the necessity for places of this kind, that similar asylums are springing up in all the large cities of the United States, and in many of the cities of Europe; there are ten in England and three in Germany. It needs no prophetic eye to discern in the near future, asylums built and managed by the State, to care for its unfortunate citizens who have become chronic inebriates by the laxity of its laws. Then there will be legal authority, as there ought to be, to hold such patients from six to twelve months, or until cured.

IMPULSIVE INEBRIETY.

While there is no doubt in the minds of those who have investigated this subject, of the *inheritance of inebriety*, there are well authenticated cases of "sudden rushes" into intemperate habits, by the most exemplary temperance people, caused by sorrow, fright, hypochondria, failure in business, shock, nervous exhaustion, debility, disappointment, etc. Dr. Crothers, Superintendent of the Asylum at Walnut Hills, near Hartford, Connecticut, gives many authentic cases

of persons who were formerly strictly temperate, becoming hopeless, impulsive inebriates, as follows:

A *merchant*, healthy and temperate, aged forty-five, was frightened by a railroad accident, suddenly took to drink, and died of acute alcoholism.

A *clergyman*, of strong temperance principles, and in good health, lost his wife by death, began drinking to drown his sorrow, became a hopeless inebriate, and is now in state prison for assault.

A *lawyer*, strictly temperate, was rendered unconscious by a stroke of lightning, and after recovery began to use large quantities of spirits, and died in a short time of *delirium tremens.*

A *farmer*, who was a confirmed hypochondriac, seing his barn burning, became greatly excited, and two days afterwards began drinking, and was constantly drunk until he died.

These and many other cases of similar character, are related by Dr. Crothers to show that there is an impulsive mania in inebriety.

ALCOHOLIC DISEASES.

All medical men admit that the excessive use of alcohol, no matter in what form, produces disease; and no doubt *develops* latent disease. We can all understand how incipient heart disease could be, and is, developed by over stimulation with alcoholic liquors. Dr. Norman Kerr, of England, gives as his opinion, that there are some diseases which are *produced* only by alcohol. In this category he classes alcoholic phthisis, alcoholic rheumatism, alcoholic gout, alcoholic paraplegia, alcoholic diarrhœa, dipsomania and delirium tremens. Every medical man who pays attention to statistics, knows that the deaths from alcoholism reported to the Health Bureau in San Francisco, and other large cities, is no indication of the truth. The death certificate is made, in

many instances, to misrepresent the facts, so as to screen from public view the intemperance of some beloved and lamented member of a respected family.

Dr. Noble, of Manchester, England, attributes one-third of the diseases of the present day to the intemperate use of alcoholic liquors. If this estimate be correct, you will readily understand that no disease of mind or body is so important to the general public as the disease called alcoholism. The voice of medical science is making it clear that *alcoholism is a disease*, and that to be successfully treated it must be treated medically. Moral influences have little or no effect in the successful treatment of this diseaae.

Dr. Thomas Morton, of London, has collected statistics showing that in England and Wales, with a united population of 22,500,000, not less than 54,443 deaths were caused by alcohol in 1880, leaving out all deaths in hospitals. If those dying in hospitals, from the same disease, were taken into account, it would swell the number to not less than 60,000 persons who fell victims to alcohol poisoning in one year in England and Wales. It is believed, by those who have peculiar opportunities to to know in this matter, that this ratio is exceeded in the United States.

SOME PECULIARITIES OF ALCOHOL.

It is well known that *pure* alcohol is a violent poison. When diluted its effects are not so rapidly manifested, but they are none the less certain. Until recently it was supposed that alcohol was largely eliminated through the lungs and kidneys. But Dr. Dupie, of Paris, who has made extended investigations on this subject, states that but a minute fraction is eliminated by either the breath or urine. From the fact of its producing diarrhœa, we may assume that it passes freely from the bowels.

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By experiments made by two eminent surgeons of the

British army, lately, it is found that small quantities of alcohol increase the appetite, while large quantities destroy it. The action of the heart is increased thirteen per cent., hence its continued use, even in small doses, tends to heart disease. In nearly every case that has come under my care at the "Home of Inebriates," I have noticed very rapid pulse, almost invariably above 100, and in many cases going as high as 120, and even 130 when the patient was suffering from *delirium tremens*. If the patient has been on a continued debauch, as a rule he has no appetite; and if induced to partake of food, no matter what, the stomach will reject it, and this conditiou sometimes continues for several days. One of the patients, quite a reliable person, assured me that he had not partaken of solid food for six weeks; that beer and whisky were his only meat and drink.

Owing to the peculiar fascination which alcohol has for many persons, a circular has been issued by a large number of distinguished London physicians (more than than two hundred and fifty), including Sir Thomas Watson, Sir Henry Holland, Dr. Quain, Dr. Buck, Dr. Page, etc., regarding the evil effects of indiscriminately prescribing alcohol. These gentlemen say that such practice had, in many instances, laid the foundation of intemperate habits; and they urgently advise that it should be prescribed with as much care as any other powerful drug, and its use discontinued at the earliest possible moment.

ITS INFLUENCE ON THE SEXES.

Professor Verga, of Milan, who has given considerable thought and investigation to this subject, says that "persons afflicted with alcoholism are seldom given to kleptomania or suicide; and that women are less liable to become drunkards than men; but when women do take to drink they are much more difficult to reclaim, becoming shameless but not danger-

ous." He has also noticed "that men are more liable to drink in *cold* weather, and *mild* weather has the same effect on women." My experience here in California differs somewhat from that of the distinguished Professor. I find that the common drunkard, in very many instances, becomes a common thief; he will steal to get liquor if he cannot get it otherwise. I also find that drunkards of high and low degree frequently commit suicide. The quality of the California liquor may account for this difference, as much of the poorer alcohol on this Coast is made from potatoes, and Dr. Maguns Huss, of Stockholm, (a very high authority) says that alcohol made from potatoes contains a large quantity of fusel-oil, which greatly aggravates the symptoms in cases of alcoholism. It is certainly a fact, however, that females addicted to liquor are much more difficult to treat, and much less certain to reform, than the males. The female does not so readily adopt the habit of using liquors as the male, but when she does become confirmed in the habit she appears to have less control of her appetite than the male.

I find a singular fact in the police reports of New York City regarding the effects of alcohol on the sexes. The number of women arrested for being drunk more than six times in four years was 9,006; the number of men arrested, during the same period, for being drunk more than five times was only 560—sixteen times as many women as men.

In San Francisco, from July, 1879, to 30th June, 1882, four years, 27,918 men were arrested for drunkenness; during the same period about 6,000 women were arrested for the same offense—more than four times as many men as women.

CAUSES OF ALCOHOLISM.

In many cases of alcoholism nervous exhaustion precedes the habit of indulgence. Too close application to any work or study induces to stimulation—especially is this the case

in brain workers; but it also prevails to an alarming extent among the muscle workers. In at least one-half of those who have come under my care at the "Home," *inheritance*, or traces of inheritance, could be discovered. Drunkenness could generally be found in some of the ancestors of the patient, mostly father or mother—occasionally the grandparents. Nervous shock is also a cause, as illustrated by Dr. Crothers, and before alluded to; as are also ill-health, loss, disappointment, social customs, etc. Another cause, peculiarly American, is the universal custom of "treating" during business hours. A friend invites another to drink, and, while he may not be thirsty or desire to taste liquor, he does so that he may not appear impolite or churlish. The taste is thus acquired which leads, most certainly and speedily, to chronic alcoholism, which Mr. Marfaing, a French writer on this and other kindred subjects, asserts was scarcely known to the medical profession thirty years ago, but which is now one of the most common diseases we are called upon to treat.

DIAGNOSIS.

The *diagnosis* of alcoholism is not difficult to make, as the soldiers in that army hang their banners on the outer walls.

PROGNOSIS.

Where there is no organic disease, and the attacks have not been frequent, alcoholism is generally treated with success. If there are head symptoms, if convulsions supervene, if they are epileptiform in character, the case becomes complicated and will probably terminate fatally. Death resulted in only three of the more than 800 cases treated by me at the "Home." Neither of these should be charged to the physician or the treatment, as one was moribund when he entered, and the others died in epileptic convulsions, which are frequently fatal in inebriates.

TREATMENT.

The question is often asked: "Can alcoholism be cured?" It can always be answered in the affirmative. How? *By total abstinence from intoxicating drinks.* That is the one, only, positive cure for those who have a thirst for liquor. Up to this date medical science has failed to discover any remedy, or combination of remedies, which will utterly and forever deprive alcoholic patients of a desire for liquor. We can generally cure them of the *effects* of alcoholism; but only time, and the exercise of a strong will-power—a determination to "neither touch, taste, or handle the unclean thing"—can save them from a drunkard's grave. I have given a thorough trial to "Cinchona Rubra," a preparation gotten up for the cure of alcoholism, by a medical practitioner of Chicago, but it proved another failure.

As alcohol is a poison, my theory has been, and is now, that the sooner the patient ceased taking it the better for him. I have carried that theory into practice with the best results. Alcohol, in no form whatever, has been given to the patients under my care at the "Home," *except in one case, and he died.* That was the patient who came in moribund, and I thought if alcohol was good in any case it would be in his, *but he died.* Dr. Nicholls, of Longford, Dr. Davis, of Wrexham, Dr. Collenette, of Guernsey, Dr. Webster, of St. George's Hospital, London, and other distinguished medical authorities in England, have spoken in the highest terms of the benefical effects *of the entire withdrawal of alcoholic liquors from the inmates of asylums.* And my own experience at the "Home of Inebriates" justifies me in the statement that alcoholic stimulation in the treatment of inebriates is a decided injury and wrong to the patient. It is merely adding fuel to the fire that is consuming him.

When I desire to stimulate an inebriate patient, I use am-

monia—generally the carbonate—and I find that the stimulation thus produced sustains the action of the heart, and does not stimulate the brain. To produce gentle stimulation I use beef tea, which acts also as a valuable nourishment.

Wheu the inebriated patient is first seen by the physician, he should be carefully examined, to be assured there is no heart trouble. Being satisfied of *that*, the rest is plain sailing; he should be immediately prepared for bed, and given a a sleeping draught. The remedies I use for this purpose, with the most gratifying success, are hydrate of chloral and bromide of potass., dissolved in water. I prepare a bottle of each in the proportion of thirty grains to the ounce of water. The patient generally receives an ounce from each bottle, the two being mixed before taking, i. e., two ounces of water, containing thirty grains hydrate of chloral and thirty grains bromide of potass. If his bowels are constipated, he also receives a sufficient number of compound cathartic pills (improved), to produce an operation in four to six hours. If the patient is suffering with *delirium tremens*, he is kept under the influence of the anæsthetic, with brief waking intervals, for twenty to thirty hours, after which his condition will be somewhat improved. Night being a terror to the inebriate, he is for several nights assisted to sleep, by chloral and bromide in gradually decreasing quantities. His food, if he will take any, is of the most nourishing kinds. As a rule, if the patient has been on a continued debauch, he has no appetite. The bromide of potass. being a salt, improves the appetite somewhat; quinine is also given, and he is persuaded to take a little beef tea. If the stomach continues irritable, small quantities of milk, gradually increased, is the best food for him, and will be retained when everything else will be rejected. I begin with a tablespoonful, and sometimes even less.

Very frequently patients are violent and quarrelsome, refusing to take medicine, and have to be confined to their beds by force. In such cases I do not hesitate to inject, subcutaneously, fifteen grains chloral hydrate dissolved in water, and repeat it in an hour if necessary. Majendie's solution of morphia is also used in certain cases, especially where delirium is present, with great advantage, twenty to thirty drops hypodermically.

Oxide of zinc, in two-grain doses, three or four times per day, is highly commended by Marcet, and indorsed by Hammond, of New York. I have tried it in a few cases of *acute* alcoholism, and found it very good.

Where the pulse is slow and feeble, and the patient shows a tendency to sink, I give him thirty drops tincture digitalis, several times a day, with good results.

As you will see, *the principal object is to secure profound sleep as soon as possible.* Nature, speaking through the patient, calls loudly for "this sweet restorer." It is the first thing they ask for, when at all conscious, and continue to implore and beg for it, until nature is satisfied, which is indicated by the quieting of the nervous system.

As the patient becomes rational, the appetite returns, natural sleep is restored, and the medicines are withdrawn. During the whole of this time he should be closely watched, and if violent, he should be tied down to his bed, so that he may not harm himself or others. I have failed to see the ill effects of a sudden withdrawal of the accustomed stimulus, and have never known *delirium tremens* produced by stopping the use of alcohol, provided sleep is induced. Dr. Aitken, in his "Science and Practice of Medicine," denies that *delirium tremens* ensues from any such cause. Drs. Hammond, Flint, and others, assert that it does. My experience would

lead me to believe that the patient is immensely benefited by the entire withdrawal of alcohol.

In concluding this very imperfect communication, permit me to remark, that while I do not feel the need of total abstinence in my own person, having no desire for strong drink, believing that liquors are made for use, but not abuse, yet *I am sure* that thousands and tens of thousands of the youth and flower of the land are annually being ruined in body, mind, and estate, by the indiscriminate use of alcoholic liquors. No matter how carefully a young man may be raised, no matter how thoroughly educated, or how great his talents, if he uses strong drink as a daily beverage, he soon acquires an uncontrollable appetite for it; he becomes a loafer and a pauper, and will go with disastrous speed to the gutter and the grave. If he is sober and steady and clever there is no post of honor or emolument in this grand republic to which he may not reasonably aspire. If he becomes a drunkard, there is no depth of degradation to which he will not descend.

CASE OF OVARIAN DROPSY.

Recovery after Thirty-four Operations of Tapping.

BY E. N. FOOTE, M. D.

Mrs. M., aged 48, married, and mother of three children, was afflicted some six or seven years since with severe uterine hemorrhage, which, however, was easily controlled. She also complained of a severe pain in the region of the right ovary. On examination a tumor was detected, of inconsiderable size, but somewhat tender to the touch. After some two years all hemorrhage ceased, and gradual enlargement of the abdomen took place. She had no doubt that she was in a family way, and often informed me that she felt motion and life. After some months an examination was had, and the diagnosis was ovarian dropsy. The enlargement of abdomen continued. The heart and lungs were forced into the apex of the chest, and great difficulty of respiration or bodily movement supervened before she would submit to the operation of tapping. Dr. A. Clark performed the first operation on the 30th day of October, 1877, taking fully five gallons of liquid. From that time until June 30th, 1881, she was tapped thirty-four times. The average amount of water for twenty-five operations was over four gallons, from which time there has been less, not averaging over two gallons for the last nine operations.

August 20th, 1879, Dr. J. H. Wythe, of Oakland, was called in consultation, with the view of performing ovariot-

omy. Dr. Wythe performed the operation of tapping, this being the eleventh time, examined the tumors of the ovaries, which were found on the right and left side. He pronounced them multilocular in character, and strongly insisted that the operation of ovariotomy should be performed; also stating to the patient and husband that there was no prospect of recovery without such an operation, and that the question of life would soon be determined, at most within one year. The condition of the patient at this time was truly bad—great emaciation, anasarca of the lower extremities, and the parieties of the abdomen not thicker than a piece of pasteboard. The patient and friends, after a few weeks of deliberation, decided not to submit to the knife.

The operations for tapping were continued once in twenty to twenty-four days, until I found that by a close bandage, kept on as long as possible, the time for an operation was extended. Her general health improved, and there was less secretion of water in the cyst. With a view to greater relief for my patient, and a cure, if possible, I had a strong abdominal corset made with eyelets, armed with a stout cord, so that a tight lacing would produce an equal pressure from the pubis to the sternum. In each succeding operation the water was drained from the cyst as nearly as possible to the last drop, the corset applied, and tightly laced. The time for tapping was extended from thirty to forty, and even sixty days, and at no time was there allowed more than six to eight quarts to accumulate before again operating. Her general health continued to improve. Adipose tissue increased. On the 30th day of June, 1881, she was operated on for the last time. The lady is now, and has been since the last operation, in good health, attends to her domestic duties, and has recovered her usual weight and adipose tissue.

From the above facts in this one case, is there not sufficient to give us hope, if not security, against the knife?

And if in every case of ovarian dropsy this treatment was properly and persistently carried out, would there not not be a sufficient number of cases cured or materially benefited to establish the fact that the formidable operation of ovariotomy is too often resorted to?

The theory of this case must be apparent to every one—first, the drainage of the cyst of every drop of fluid; and second, the equal and firm pressure over the abdominal parieties, bringing the inner surface of the cyst in perfect coaptation, when agglutination and adhesion take place, entirely destroying the sack and obliterating all secreting surface.

This case cannot be considered fully and fairly reported until I give another theory of cure. The patient, husband, and friends believe (and it would be difficult to convince them to the contrary), that the following treatment was *the* cure, and only cure. I will relate it as near as I can in the husband's own words; and here I will remark that Mr. M. is an educated gentleman, a close observer, and otherwise not in the least given to quackery. Some time after the last operation of tapping, Mr. M. was in this city, and in a business capacity met with a lady Doctor who was treating a broken breast in which there was an abundant secretion of milk. The treatment consisted in applying a strong decoction of Peruvian bark, in whisky, to the back and shoulders of her patient. The idea at once suggested itself that if this medicine would dry up the secretion of milk in the breast of a female, why not prevent the secretion of water in ovarian cyst? He accordingly armed himself with the medicine, and the next day it was freely applied over the abdomen and back. This medicine was supposed to work like a charm. They have used this decoction externally from time to time until the present; and they assure me that its use increases the secretion and flow of urine, relieves all pain and soreness, and that this decoction has been the real cure in the case.

PNEUMONIA AND ITS TREATMENT.

BY ALBERT CHASE, M. D.

The ravages of pneumonia during the past Winter have been the subject of frequent comment by the Eastern journals. Its great prevalence and singular fatality among men of prominence in business and social circles, of late, has attracted much attention. It has assumed almost the proportions of an epidemic, and is so talked of by some physicians. It has appeared in a peculiar form, and has caused some speculations touching the "vexed question, and troublesome mystery of its origin and cause." When it is prevalent everywhere, as it has been during the past Winter, the causes may be less obvious, unless the great vicissitudes of the weather of this notable year account for it. The cold, driving snow storms, even here in San Francisco, but more especially east of the Rocky Mountains, have been so severe that the rough name of blizzards comes to shock our ears. The northeast blizzards sweep down the Atlantic Coast as far south as Baltimore and Wilmington, as late as March 23d, and still later in April, hail, followed by heavy snow storms, spread down through the Southeastern States—later and heavier than were ever known before.

Now, it may be that men of prominence in business and social circles often indulge in more luxuries in eating and drinking, and while away the time until the storm is past, in overheated rooms, so that they more easily catch

cold—have a bilious attack, and then become an easy prey to pneumonia. Of the cause of pneumonitis, Flint says: "An adequate internal cause, of course, always exists, but its nature and source are not understood; nor, indeed, are we able, with our present knowledge, to explain the development of the disease while it appears to follow an obvious cause, viz.: exposure to cold. It is probable that the latter acts as the exciting cause, coöperating with a diathetic condition or predisposition. It is questionable whether the abuse of alcohol acts directly as a cause, or whether the disease may not be due to concomitant circumstances to intemperance, such as exposure to cold," etc.

Here let us ask, with all due respect to so good an authority as Professor Flint: Does not the abuse of alcohol have a tendency to retain the old effete matters in the blood, and if the liver is not the first to feel it? Further on he states that "slight jaundice is an occasional concomitant of pneumonia." Its occurrence, he says, is probably accidental; at all events, it is not associated often enough to show any pathological connection between pneumonia and hepatic disease. On the contrary, Haller states that he has often been able to detect biliphœin in the blood of pneumonic patients when there was no other indication of a deranged state of the function of the liver. The urine is also dark, and of high specific gravity, and remains acid through the whole period of the disease. According to Grissolle, "pneumonia accompanies jaundice in about one-thirteenth part of the cases." In about the same ratio it accompanies remittent bilious fevers in high altitudes.

Located at Austin, near the center of the State of Nevada, during a period of twelve years—from 1863 to 1875—I had an opportunity of studying this disease somewhat at my leisure. Between the altitudes of five thousand and nine

freight out on the plains. Not any of the lean cattle suffered much, but most of the fat oxen died of bilious pneumonia. On post mortem examination he found red hepatization of almost the entire lungs. The liver was completely engorged with very dark blood, apparently of longer standing than that of the lungs. The spleen would not bear much handling. It was distended with very dark clotted blood, and so soft that the fingers would easily press through it. Chickens also died of bilious pneumonia, when kept in cold places in these high altitudes. They died in a few days after beginning to droop. The symptoms were short, hurried, croupous breathing, and dark, livid comb and gills. On examination I found pretty generally red hepatization of both lungs. The liver was engorged with darker blood and showed a longer or prior congestion to that of the lungs. Plato said to his pupils that like a chicken, man was a two legged animal, but without feathers. This comparison runs on as many legs in pathology as in anatomy.

It is announced that the Department of Agriculture will shortly establish, near the City of Washington, an experimental farm and hospital for the treatment of domestic animals, with the view of ascertaining, by a series of scientific experiments, what are the causes of such diseases as the Mexican fever or pleuro-pneumonia, etc., and what are the best methods to prevent and cure them. In this way, by comparative pathology, we hope for "more light to be revealed." Few autopsies were held in the new mining districts of Nevada, where so many died so suddenly of pneumonia. Few cases were attended at first, if at all, by regular physicians; but enough autopsies were made to show that hepatic congestion occurred prior to congestion of the lungs. The premonitory symptoms and what followed confirmed this view. But when febrile pneumonia supervened, the suddenness

and gravity of the invasion, the profound disturbance of the respiration, all conspire to render this one of the most severe diseases of the economy.

The history of the therapeutics of all pulmonary diseases has no subject of greater interest than this. The ancients made this the type of phlegmasia. "We must triumph over the disease," said Sydenham, plunging in the lancet. In the contest of the physician and the disease, it was well nigh forgotten that there existed a patient. The Hippocratic doctrine of nature's struggle for a spontaneous cure, was lost sight of. Treatment of the most heroic kind prevailed for a long period. The slowness of convalescence was attributed to the disease and not to the medication.

Paris and Vienna statistics come in to show that the absence of all treatment gave better results than medication of a very active kind. This active kind comprises blood-letting, antimonials, digitalis, aconite, veratrum, and quinia. Sydenham used to take ten or fifteen ounces of blood in the morning, as much more in the evening and the next morning. France would take a quart a day. Italy would exceed two quarts a day; the first day, two bleedings of the fore-arm of four cupfuls, and the application of numerous wet cups; the next day repeat with leeches and scarifications; the third day still another bleeding, which was renewed the fourth day and the fifth day, if the pneumonia resisted. Thirty-eight separate places are marked as the proper place to bleed in different diseases—for headache, bleed in the foot, etc. Truly, the lancet was the bloody magician's wand in the dark ages of medicine.

The objection to venesection in pneumonia is that it takes away the best elements of the blood and leaves in excess the white globules which are already in excess in this disease; and it is a well known fact that there is an intimate relation be-

tween the production of pus and the white globules in the blood. The tendency to purulence may then produce suppuration in the intra-alveolar exudation, and so have a grave termination. The bleeding may lower the temperature and diminish dyspnœa for the time, yet at the same time it enfeebles and puts the patient in a condition favorable to suppuration, without diminishing the pulmonary exudation.

Rasori, an Italian physician, first associated the antimonial treatment with blood-letting, and then dropped the latter and relied on the tartar emetic treatment alone. His dose was from one-half to one gramme in a quart of water, and repeating the dose during the day. Many of his disciples have carried this treatment still farther, giving as much as ninety grains daily, so that the patient, during his sickness, would sometimes take about two ounces of tartar emetic.

In order to secure toleration of this medicine, the limitation and even suppression of all liquid ingesta has been enjoined. The greater number associated opium with the antimonial. Signs of profound adynamia were considered favorable. Physiologically, it is a powerful local irritant. It develops pustules internally as it does externally. Grissolle, in cases in which tartrate of antimony had been given by the mouth, has observed ulcerations throughout the whole alimentary canal—in the throat, æsophagus, stomach, and intestines. These ulcerations have even caused strictures in these parts. It lowers the temperature, but weakens the heart's action, and depresses the nervous system. The action of tartar emetic on the pulmonary exudation is absolutely *nil;* it lowers the fever heat, but this result is obtained at the expense of grave disturbance of the economy; the vital forces are too much depressed, and enduring lesions of the alimentary canal are often produced. It is more dangerous when given to children in large

doses than to adults. The sedative cathartic, diaphoretic and expectorant action of tartar emetic, when given in *small doses*, combined with other medicines, is singularly happy in the cure of pneumonia, when administered in its early stage.

Ipecac, another invaluable remedy in this disease, has been much abused by using it in heroic doses of twenty to thirty grains. When given in one or two grain doses, it acts as a tonic astringent, anti-hemorrhagic, modifying the action of the bronchial glands, and aids expectoration. It has also been shown to have a slowing action on the circulation.

The German and French schools have labored to control the circulation and temperature by the use of digitalis, quinia, and veratrum. But the full antipyretic effects of these are not obtained without incurring certain dangers. Good results in the moderate use of digitalis in pneumonia have been claimed for it far and wide; but its complex action on the nervous system, heart, and kidneys, seem to point to its greater utility in irritant fevers, neuralgia, and dropsy.

Sulphate of quinia has had its warm friends in the primary treatment of pneumonia, as an antiseptic; but given in proper therapeutic doses, it is more likely to aggravate the fever than to lower it; and in order to obtain any marked fall in the fever heat, almost toxic doses must be given. This is indeed what has been done—seventy-five grains of sulphate of quinia have been given in a single dose to a patient in pneumonia. However marked the malarial elements in the case, without the figures and results in such treatment, it must be reprobated in the highest degree.

The cardiac sedatives have not a good record. Such as veratrum, digitalis, and aconite, do not modify the fever by lessening the duration of the disease. They can only weaken the heart, already struggling with stasis on the venous side and lack of blood on the arterial side—here paralysis of the

heart is the greatest danger. On the contrary, stimulants, and quinia in small and frequent doses, sustain the heart the best.

Cold applications and cold baths are of ancient date, but are now limited to Germany and Switzerland. After long discussions in France, and trials in hospitals, the cold bath was condemned in typhoid fever and malarial febrile diseases in general; but in pneumonia, more especially, the cold water treatment became rapidly mortal; but warm baths render excellent service.

Besides these general methods of the past, many other remedies have been used, such as the sugar of lead, phenic acid, small doses of calomel, salts of ammonia, and ergot. The most extraordinary treatments of pneumonia are the inhalation of chloroform, the administration of cantharides, and the aspiration of blood from the inflamed lungs; the subcutaneous injection of morphine; the administration of bromide of potassium, chloral hydrate, and musk.

In opposition to the foregoing therapeutic methods, almost all of which act by depressing the system, the celebrated English physician, Dr. Todd, in introducing alcohol into the treatment of pneumonia, occasioned a veritable revolution. The distinguished French Professor, Dujardin-Beaumetz, says this treatment gave startling results from the standpoint of statistics. Look at the figures given by Jaccoud, and we see that while the cases of pneumonia treated by blood-letting have an average mortality of thirty and five-tenths per cent, the mortality is only about three per cent, under the supporting treatment. The following are Jaccoud's tables:

I. Pneumonia treated by bleeding.

Statistics of Edinburgh Hospital, cases	**698**	**mortality....34.52 per cent.**
Statistics of Dietl	**95**	**mortality....20.40 per cent.**

Total cases, 793; average mortality, 30.05 per cent.

II. Pneumonia treated by tartar emetic alone.

Statistics of Rasori, cases .....648 mortality....22.76 per cent.
Statistics of Dietl, cases.....106 mortality....20.76 per cent.
Total cases, 754.

III. Pneumonia treated by the "mixed methods;" expectancy in the mild cases; bleeding and antimony in severe cases.

Results grouped by Lænnec, Grissolle, and Skoda:
Maximum mortality.....16 per cent.
Minimum mortality.....12 per cent.

IV. Pneumonia abandoned to itself.

(Expectant pure.) Statistics of Dietl, cases....189 mortality....7 per cent.

V. Pneumonia treated exclusively by the tonic regimen.

Statistics of Bennet, cases.....128 mortality....3.10 per cent.

Statistics must be taken with a grain of allowance, owing to the different types of disease.

In a large number of cases treated by blood-letting, the mortality was 34 per cent, while in that of supporting treatment it was 3.10 per cent. Here are startling results. Alcohol entered into this English supporting treatment. What, then, are the physiological and therapeutical effects of alcohol in pneumonia? At first, alcohol acts unchanged upon the cerebro-spinal centers, bracing up and sustaining the heart's action. It supports the vital forces and tones up the tissues, and instead of augmenting the temperature, lowers it. Now, it is the result of many observations, that alcohol especially relaxes the vaso-motor system; this shows itself in giving motor force to the heart action, and in relaxing the capillary vessels, which become filled with blood, especially in the nervous system and in the skin. In this way it relieves in a measure the congestion of the lungs. By bringing a large amount of blood to the surface, it cools it, acting like a refrigerator. As the person who is in health feels below par the next morning after taking alcoholic stimulants, so in disease with a temperature of 104° or 106°, in low, muttering delirium, alcohol acts best of all as a restorative. Later it

acts as food, like sugar and vinegar, all three being composed of the same elements. It gives force and restrains waste, at the same time acts as an antipyretic, by oxidation in the blood, forming acetic acid and acetate of soda. In this way it is thought that alcohol in pneumonia, of all antipyretic medicine, is the safest. It is not to be used as a beverage, and only as a medicine until the temperature is brought back to its normal standard. Ethyl alcohol (from various fermentations) is the best. The worst is amyl alcohol (potato spirit, fusel oil.) The toxic ratio between pure alcohol and fusel oil is one of fusel oil to three hundred of alcohol. The least dangerous are the alcohols that are obtained from the distillations of wines, or good, generous wines in moderation, diluted with water.

The theory has long prevailed that pneumonia has a definite cycle, like typhoid, or eruptive fevers, in their march. Therefore it is said there is no abortive treatment for pneumonia. Bartholow says; "There is a growing belief that pneumonia is a constitutional disease, like typhoid, or relapsing fever. It is designated by the German writers, 'croupous pneumonia,' and by the French writers, 'fibrinous pneumonia.' "

COURSE, DURATION, AND TERMINATION.

Croupous pneumonia, he says, is a well defined, self-limited disease, which passes through its several stages with considerable uniformity. The stage of congestion or engorgement occupies the first twenty-four to thirty-six hours; the stage of exudation, or red hepatization, that period occupied by the pouring out and coagulation of the exudation—continues up to the crisis, which marks the beginning of the next stage. The crisis in pneumonia occupies somewhere from the fifth to the eleventh day of the disease, so that the exudation stage lasts from two to eleven days. The stage of

resolution begins with the phenomenon of the crisis, and lasts two to four days, till convalescence is established. In rare cases (abortive forms) critical phenomena may occur even earlier than the fifth day. In the largest number the crisis begins on the seventh day, and, according to Traube, always on the odd day, reckoning from the day of the initial chill, but if we except the seventh day, the statement of Traube must be denied. The stage of purulent transformation is not distinctly separated from the stage of exudation or red hepatization, unless the occurrence of an abortive attempt at crisis fixes the period. It begins at about the middle of the second week and continues for several days to a week. The whole course of pneumonia is therefore comprehended within three weeks, but favorable cases may terminate in two weeks. The mortality from pneumonia has been and continues to be a subject of warm discussion on the part of those who advocate some special plan of treatment. But diagnosis and skill in treatment are such uncertain elements in the statistics of mortality, that but little reliance can be placed on the statistical methods as applied to therapeutical questions. According to the most approved of the modern methods, the mortality ranges from five to twenty-five per cent."

My observation does not corroborate this theory of Bartholow, of a fixed cycle, like that in eruptive forms—at least, in bilious pneumonia. The expectant treatment of seven to nine days waiting for the so-called normal evolution of the disease is a loss of time and a great risk to the patient. There does not exist for the treatment any ready-made formula or any routine practice. Treatment must be adapted to the march of the disease and the symptoms which it presents. The recommendation of a recent author on the "Theory and Practice of Medicine," to expose the body to cold air, the cold bath, or the cold wet pack, seems to me to be too shocking to think of; but

the most successful treatment of bilious pneumonia that I have ever seen consists of giving a patient a hot vapor or steam bath. When nothing better was at hand, I have often called for a tea-kettleful of boiling water and a bucket of cold water, a wash-basin, and a bathing or large wash-tub. Seating the patient on a stool in the tub, covered with a sheet, having the water mixed in the wash-basin as hot as can be borne, I ladle it on the sheet covering the patient. From the tea-kettleful of boiling water and the pail of cold water the wash-basin is kept replenished. This hot bath is kept up for thirty or forty minutes. If the patient complains of suffocation, cut a hole in the sheet and let his nose out. While under this simple modus operandi, they will tell you that they have sweat more than the water you have put on them. By inhaling the hot vapor they will expectorate a large amount of mucous and phlegm, and sometimes more or less blood. In this way the bronchial tubes and more or less of the lungs are cleared of a good deal of obstruction, the whole blood is made more fluid by perspiration and absorption of water, so that the heart works easier, and the dyspnœa is greatly relieved; in short, you have respited the patient and gained time for the operation of medicine. After this vapor bath the patient is to be wrapped up in a warm bed, with the temperature of the room at 72°. I describe this plan minutely, because it is one that is always available in the city or country alike, not only for pneumonia, but also very useful in rheumatic and all bilious fevers, especially if employed as the initial treatment—at the very outset of the attack.

The next thing for our pneumonia patient is an alcoholic stimulant, well sweetened, and a little syrup of squills added. Then comes the croton oil—ten to fifteen drops—brushed over that portion of the lung which sounds dull on percussion. Over this apply a generous hot mustard poultice, not

strong—say one part of mustard to ten or twelve parts of flour—so that it can be borne for many hours. As a type of the cathartic to be administered, perhaps calomel, ipecac, and antimony in small frequent doses, answer well—two grains of calomel, one grain of ipecac, and one-eighth of a grain of tartar emetic, administered every hour for four, five, or six hours, or until a free evacuation of the bowels is secured. The application of croton and mustard not only hastens the operation of the bowels, but also assists in breaking up the engorgement of the lungs. As the best counter-irritants, they tend to do away with the much discussed point, of when is the best time to apply fly blisters in pneumonia. Follow up this treatment with the salts of ammonia—the muriate is preferred. These salts of ammonia not only act as a stimulant to the circulation, but also liquify the fibrinous exudations, saponify the deposits from fatty degeneration, in old age, of the heart, liver, and other organs, thereby enabling the absorbents of the lymphatic vessels to excrete and remove them. From the peculiar plicated structure of the lining of the air cells, the exudation does not lead to the production of new tissue, as in pleuritis. Coagulation, then, is the danger we have to contend with. But as the liquid form of fibrine in the blood is due to the presence of ammonia, it may be given freely as a preventive as well as curative throughout the whole duration of the disease. Free alcoholic stimulants form a very important part of the supporting treatment. Its tolerance is well marked; anti-bilious tonics—essence of beef and brandy and egg mixtures—*pro re nata.*

Often too much attention has been directed to the disease, and far too little to the good nursing of the patient. In a severe, acute attack, for the first five or six hours the treatment had better be conducted by the physician himself, than be trusted to almost any one else. By this course of treat-

ment I have seen all the bad symptoms of pneumonia wonderfully relieved, the disease aborted, and the patient out of doors the third or fourth day. If this, like remittent bilious fever, with which I have seen it mostly associated in high altitudes, is broken up in its first stage, that of congestion or engorgement, or in its second stage, that of red hepatization, or before it has advanced very far in the latter stage, then the lung resumes its healthy appearance and action without much impairment of its elasticity. In this way, too, we avoid the degeneration of the heart-muscle from long strain under high temperature. This treatment of acute bilious pneumonia cannot be called heroic, but prompt and active enough to abort the disease. Recovery is immediate by resolution, without entailing a long sequel of phthisis pulmonalis.

In adopting this simple line of practice I am only doing that which my reading and experience have long since taught me was much the best, not only for the ultimate safety of the patient, but even for cutting short the duration of the disease.

THE RELATION OF SEWER GAS TO DISEASE.

BY W. AYER, M. D.

MR. PRESIDENT, AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: An eminent writer has very wisely said that "a philosophical principle becomes valuable if it can be used as a guide in the practical purposes of life," and my purpose shall be on this occasion to bring to the front some of the ideas developed by this saying, in illustration of the subject under discussion.

In aggregation molecular forces become an irresistible power; the tempest and whirlwind are the offspring of molecular disturbances. As knowledge reaches beyond the visible and tangible things before us, and the intellectual vision permeates the untrodden paths of science, the world becomes richer with the fruits of our labors, and we who stand watch over sanitary measures are better able to give the true signal of approaching danger.

Like every other department of science, medicine is progressive, and medical thought to-day is full of the germs of new discoveries, and the earnest student is constantly presenting new and important truths to the world in the interest of suffering, while much formerly held to be true sleeps among dead theories.

This, above all other periods of the world, is the age when the genius of man is bent on invention and discovery in every walk of intellectual and scientific life, and the exigencies of advanced civilization give birth to a higher order of genius.

Physics teaches that nature is full of undeveloped forces, like the latent fire in the steel, that needs but the well directed blow of the flint to bring the spark upon the tinder and kindle the flames; and while we are investigating the effects of subtle and imponderable agencies upon health and disease, growth and decay, we can never advance in practical knowledge if we stray from the true path of science.

No subject of public interest connected with medicine has so generally engaged the attention of the masses as that of drainage and sewer gases, and yet no question of a sanitary nature is less intelligently considered.

At times a vigorous habit, dyscrasia, and *malaria* are equally vulnerable, and play no important part in the role of fortified resistance to the invasion of disease; nor does any portion of a large city enjoy special exemption from sickness and death. When the inquiry is made, "What is the cause of this or that disease?" the physician usually replies: "Sewer gas," or "malaria;" and so acceptable is this answer to popular opinion, he feels sure that no further interruption will be made by other questions; and yet few physicians would be so unwise as to attempt to explain what malaria really is, or how the noxious gases of the sewers produce disease. The object of this paper is not to prove what malaria is, or what it is not, but rather to prove that sewer gases are neither the proximate nor remote causes of disease.

During the past twenty-five years much attention has been given, in a general way, to the subject of sewer gases as the cause of nearly all the diseases in large cities, and a general assent has been given to this theory. But before finally adopting it, it is necessary to consider whether we are simply assenting to a popular idea that has not the weight of logic to give it support, or whether we are adopting axioms based upon scientific facts.

While the researches of Pasteur, Ehrlich, Koch, and Tyndall and others have proved the existence of various organisms in the air, these gentlemen have not yet proved that these organisms are the causes of disease; nor has any one shown that bacteria or spores of any kind are borne by the sewer gases to the sick room, or that the sewer gases are alone the cause of the different types of disease in the cities of the world, for we find the same types of disease in the country, far away among the fruitful fields and on the rolling hills, where sewers have never entered the dreams of the most fastidious.

In our investigations we must not forget that sickness and death are to be met with in every condition of life, and that physical decay is the inevitable, while true science is the Good Samaritan that offers the greatest relief to the sufferings of man; and no declaration that does not receive the full support of science is of any importance in the study of etiology.

We cannot tell the process of the growth of intelligence, knowledge, or civilization; nor do we know as a fact anything of the cumulative forces of the spermatozoa in gestation, yet the process of growth goes on, and a million of human beings are annually projected among the races of men. Nor can we tell at all times the predisposing or immediate cause of disease. If we find in the sputa of one patient spirilla, or spiral bacteria, and in another the bacillus malariæ, it would not follow that one had typhoid and the other a malarial fever; nor would such a discovery be any evidence that these organisms caused these different types of disease, for we are daily swallowing a few million of these organisms without any inconvenience.

Dr. Wm. T. Belfield, in his "Cartwright Lecture" on the "Relations of Micro-organisms to Disease," remarks: "The spores seem, under ordinary conditions, the impersonations

of immortality—time seems powerless to weaken them." This is very well, so far as it gives expression of the existence to these organisms, but if this is all there is to be said upon the subject, we are left to conjecture what is or may possibly be their influence over the functions of health or disease. But this is not a subject to be discussed by the logic of inference—we have the observations of the microscopists and established physiological facts before us to tell what is true or false.

It would appear that most of the investigations made by a majority of medical gentlemen have been directed with a view of proving the theory that sewer gases are the real causes of every type of disease in large cities, rather than with a desire to prove that such is not the case, until the medical mind is biased in favor of and accepts this as the readiest solution of the question. If the theory of mephitism be correct, why do we not at all times have the same type of disease? And can any medical gentleman explain why San Francisco has been so free from sickness during the past few months, while the sewers have remained unflushed?

The following statement appeared recently in one of the evening papers of this city:

"The increased mortality rate of the past two weeks is mainly due to the condition of the sewers and streets."

As the press is the conservator of public hygiene and the exponent of popular sentiment, this may be taken as a fair expression of the views of the people upon this subject. But does this assertion carry with it any statement of fact; or is the author of the paragraph competent to judge of this matter and tell why it is so?

We do not wish to say that the conclusions of medical gentlemen upon this subject are incorrect, without calling their attention to some facts in controversion of the popular

opinion most universally entertained by the leading members of the profession. We are not wedded to any theory merely because it is popular, but are in search of knowledge upon this important question, believing that true knowledge of the causes of disease will enable us to give the greatest relief.

To show that sewer gases exert no important influence over the sanitary condition of any city, I will call your attention to two cities similarly situated—one on the Atlantic seaboard, and the other on the Pacific. Boston, with the best drainage of any city in the United States, had 675 deaths during the month of February, 1883, which is an equivalent of 16-100 of one per cent of its entire population of 410,376, or 19 plus to the one thousand. During the same period San Francisco, with an unusually dry season, defective sewers, and a population of 250,000, had 399 deaths, an equivalent rate of 15-100 of one per cent, or 18 plus to the thousand.

During the month of February, 1883, in the City of Marseilles, in France, there were 912 deaths, with a population of 360,099—plus ¼ of one per cent—about 30 to the 1,000 inhabitants. During this period, according to the meteorological observations, an unusual amount of rain fell, so that the sewers were well flushed, leaving not the slightest conjecture that the sewer gases had anything to do towards causing this great mortality. (Here we should state that the difference in latitude between Marseilles and Boston is only one degree.)

This discrepancy cannot be reconciled with the idea that sewer gases are the prime cause of disease, for in Boston we find well flushed sewers, while in San Francisco the very opposite existed as the consequence of a long continued dry season, and yet the city has been much healthier than in former seasons.

The mortality of San Francisco in 1882, during the month

of February, was five hundred and nine, or twenty one-hundredths of one per cent. plus, or an equivalent rate of two per cent. of the entire population, and twenty-five per cent. greater than for 1883; and during this period the sewers were unusually well washed by the rains between November, 1881, and March, 1882. With these facts before us, the idea of mephitic gases as morbific agents must give place to a more careful and intelligent investigation, when the idea of appointing an "engineer" to superintend the plumbing of our houses as a sanitary measure will appear absurdly ridiculous and Quixotic. Yet "cleanliness is next to godliness," and "a thing of beauty is a joy forever."

The question of sewer gases as causes of disease is one of public interest, and rises in dignity and importance above all selfishness and personal controversy. For comfort and convenience, and for the moral influence of cleanliness, every owner of property and every tenant will be compelled to see that there are no defective sewers or waste of gas about his premises, so there can be no necessity for a paid officer to look after these matters, even as a moral question.

In the language of Shakespeare, "verily I do not jest with thee," when I say that the theory of sewer gases as the cause of disease is neither supported by science nor the verified statistics of a city's mortality.

But under the present classification of disease, much confusion and many errors of comparison are very likely to occur; yet the care taken in analyzing this question, with the facts before me, gives the preponderance of evidence in favor of the conclusions I have presented.

The gases known to exist in the sewers are the carbureted hydrogen, sulphureted hydrogen, and the olefiant, but they cannot occupy the same space at the same time and preserve their distinctive elements. Hydrogen, as it comes in contact

with oxygen in the ratio of eight to ten, causes combustion, and forms water. Pure hydrogen is about fourteen and one-half times lighter than common air, but when united with oxygen, the product of the combination is seven hundred and seventy times heavier than common air. Now, if this were to enter a bed-chamber, its presence would not be perceptible, as it would form the upper stratum, being so much lighter than pure air.

Carbonic acid gas is of a greater density than air, and may be condensed into a solid mass under a pressure of thirty-three atmospheres, and when carbon combines with pure hydrogen, and forms carburetted hydrogen gas, it becomes of much less density than common air, and will not be confined in a room reasonably ventilated.

The carbon or fire-damp in old wells and deep excavations does not rise to the surface, but produces asphyxia as one comes into its presence. The sulphuretted hydrogen is that which is most offensive to the smell, and is about one-fifth heavier than the air, and while it would cause prostration and sickness to one confined long in a room where it was in excess, there is no fear of its rising high enough to do any great harm, as its greater weight would not be sustained in common air.

The density of hydrogen gas, which is $14\frac{1}{2}$ times lighter than common air, is taken as a unit; its specific gravity being 0.0693. The formula of carbureted hydrogen gas being CH4, Carbon 12, Hydrogen $4=16\div2=8\times0.0693=0.5544$, or about one-half as heavy as air, and can be breathed for some time without pain (vide Downe's Chemistry). The formula for sulphuretted hydrogen is H2S. $H2+S32=34\div2=17\times0.0693=1.1781$, which shows it to be very much heavier than air, consequently this gas cannot be retained in a medium—the common air whose specific gravity is not sufficient to give it support.

The olefiant, or bicarbureted hydrogen gas, is a little less than one-half the weight of common air, and should it enter a room not air tight, would occupy the upper stratum and would not combine with the oxygen nor be able to displace it so as to cause any perceptible change in the air. Having now shown the error of the popular theory of mephetism, we must look for the morbific elements of disease in some less tangible center than the sewers.

But admitting, for the sake of argument, that the popular theory is correct, and that poisonous gases of sewers cause all the sickness, then why do we not always have a sickness of one type? These gases inhaled in large quantities would produce asphyxia, but never any specific type of disease.

These are the gases about which so much is said and written as causing the various epidemics and every variety of disease; and yet men who remain in sewers for hours day after day, while cleaning them out, and who are constantly breathing the noxious gases, never get sick while so employed, even though an epidemic be prevailing at the time. But were the germs real agencies of disease found in these places, the toilers in filth would become the early victims of disease.

Anxious to be guided in our investigation only by facts, supported by the severest tests of science, we will analyze this subject upon the rational hypothesis, which assumes that like causes produce like effects under similar conditions of the system. While we recognize the fact that excessive heat or cold, and severe exposures of any kind, may bring about a variety of morbid manifestations in different individuals, according to idiosyncracy—but in a strict generic and nosological classification—no two dissimilar diseases arise from the same cause.

In the overflowed basins of our large rivers we always find

intermittent fever as the result of the gases arising from decaying vegetation. When an epizooty prevails among horses no one thinks of attributing the cause to defective sewers, but speaks of the disease as the result of a tidal wave of morbid agencies sweeping over the country; and why not take the same rational and intelligent view of the cause of disease in men.

I do not say it is healthy to stand over the manholes of our sewers, or that the odor of sulphureted hydrogen or carbureted hydrogen is pleasant, but am speaking of these gases as they are presented in physics and treated by chemistry, in their relations to common air, and think the analogism I have presented must convince the unbiased mind of the correctness of the position I have assumed.

We cannot judge of the healthfulness of anything by its smell or taste. Some pleasant odors mark the presence of the most deadly poisons—as prussic acid—while unpleasant odors arise from preventive medicines and nervines—as chloride of lime, valerian, and assafœtida.

When sickness disappears from any dwelling house after the plumbing has been carefully attended to, it is simply a coincidence, and in nowise in controversion of the position I have assumed, and that fact cannot be accepted as evidence of the unqualified correctness of the theory of mephitism, and does no more than show that the remaining members of the family are fortified temporarily against disease. But should another family occupy the house, some of its members might have a similar disease; or, on the other hand, if the house has not been renovated, they may not become sick. Such cases have often occurred in my practice in San Francisco during the past thirty years, so that I feel warranted in saying that the absence of sickness after repairing the sewer pipes, is no more than a coincidence.

These views do not militate against the popular notion that filth tends to increase and aggravate disease. If for no other reason, cleanliness should always be rigidly enforced for its moral benefits, as new clothes always beget a higher and more refined sentiment of worship, and all moral influences affect the physical forces of organic life in the preservation of health, and must fill a prominent consideration in all sanitary measures.

The morbific changes in the atmosphere are as yet but little more than conjectures, as they are presented, among the factors of causes of disease, while the moral influences may be determined with some degree of exactness. Where we find the most unpleasant stench we sometimes find those living in its midst free from all epidemic diseases.

In 1851, during the prevalence of cholera in St. Louis, the men employed by the great packing firm of Morgan & Co., and those living in the immediate vicinity of the slaughter houses, escaped the disease. At that time from five hundred to one thousand hogs were slaughtered daily, and over two hundred men were engaged in the packing and dressing business. Those engaged in tanneries and in stables are also among the most robust and healthy people in the country. But we cannot all live in stables, nor can we be made to abandon the aphorism that "a thing of beauty is a joy forever."

It may be asked, If sewer gases do not cause disease, what does cause it? With our present knowledge of causes, this question can only be answered inferentially, except in specific cases. Does any one believe that diphtheria at San Mateo or at Butte City is caused by sewer gases? Does any one believe that cholera infantum or spinal meningitis is caused by sewer gases; or that cholera is occasioned by defective drainage at Bombay or Shanghai, and that the infectious air is driven by the monsoons over the entire face of the earth, always following the same route?

I have already alluded to the popular theory that the epizooty among horses is solely dependent upon atmospheric influences. I will briefly follow out this idea in its application to cholera, and trace its course over the continent, hoping to awaken some suggestive idea that will ultimately lead to a full solution of the problem of causes of all human maladies.

In 1817, cholera made its appearance in the delta of the Ganges, and soon swept over the entire province of Bengal, and reached as far as Hindostan, where it was checked by the Nepaulese Mountains for several years. It then followed along the Mediterranean and Black Seas, broke out in Odessa, and spread to Moscow, and many of the important cities of Russia; visited the eastern coast of Africa, while Cape Colony and the western coast were free from its appearance. It then seemed to return across the Indian Ocean, broke out in Calcutta, and along the borders of the Mediterranean Sea; passed up the Danube and several of the large rivers, turning towards the west, as if the morbid elements were marshaling their forces to carry the pestilence to the western hemisphere; and nearly all the alluvial, marshy, and calcareous formations of Europe and Asia were attacked, while all the granite and basaltic and gravelly regions were exempt from the disease, or nearly so.

Professor Graves, of Dublin, carefully traced this disease through all its wanderings to these very formations, as appears in *The Dublin Journal of Medicine and Science*, published January, 1840, but failed to draw any conclusions or assign any reasons for the spread of cholera in such localities, simply remarking that it is singular it left a number of places entirely untouched.

On the 10th of February, 1832, it made its appearance in Edinburgh, and in Paris and Dublin in March of the same year. Thus we see for fifteen years the disease had been

roaming over Asia and Europe to reach the eastern shores of the Atlantic. On the 8th of June, 1832, it made its appearance in Quebec; on the 10th at Montreal, and simultaneously it broke out in Ogdensburg, Albany, and New York, while Nova Scotia, New Brunswick, and all the New England States were entirely exempt. In August a few cases appeared in Boston and a few of the interior towns, and in Connecticut, along the clay and lime formations. Afterwards it spread over the Middle, Southern, and Western States, and nearly every town suffered from its ravages, except the regions about the pine forests of Georgia and Florida, which were exempt.

The disease followed a very similar course when it made its appearance the second time, in 1850–51–52, crossed the plains, and reached California, where we find the slate and granite districts entirely free from its appearance as an epidemic. Many at that time believed the immigrants brought the cholera to our State, and with them the germ theory became an established fact, "with confirmation strong as Holy Writ," and still is wanting and forever will be wanting proof.

As yet no one has ever claimed that sewer gases caused the disease, or explained why one portion of a country was attacked with full vengeance, while another portion was entirely exempt.

Dr. Reynolds says: "It is doubtful whether there is any relation between the marsh malaria and cholera." Dr. Lorimer found that nearly half the epidemics took place on the black cotton fields; and Dr. Parr states that "in England it was less fatal on the primary geological formations than on others;" and that it is less prevalent on "mountain elevations than on low lands." It is also noticed that during the prevalence of cholera, ozone is nearly wholly absent in the

common air in the districts affected by it. If the countries which escape the disease shall be found active in ozone and electricity, then my position will be fully maintained.

Atmospheric pressure at sea-level is always the same in the same latitudes, as an established fact, but the barometric changes show there are influences that modify the conditions and enable the mariner to foretell the storm.

At Calcutta, 22° 36′ north latitude, the pressure is 29.408 in July, and 30.102 in January; and at Rio de Janeiro, 22° 57′ south latitude, it is 29.744 in January (Summer), and 29.978 in July (Winter). In Siberia the pressure is 28.267 in July, and in January, 28.865.

D. Van Nostrand, in his work on the "Aneroid Barometer," says: "The great heat of Siberia during the Summer causes the air to expand and flow away in all directions, and the diminished pressure is not compensated by any aqueous vapors of the atmosphere."

Off the River La Plata, with a clear sky, the barometer rapidly rises to indicate the approach of the monsoon, while in the Indian Ocean the opposite takes place to foretell the typhoon; and thus we find the anomalous relations of pressure and expansion of the atmosphere during these fearful storms; and these phenomena have an important significance in the study of the causes of disease.

Grummach has carefully investigated the physiological action of respiration in an atmosphere of varying density, and the effects on the respiratory and circulatory system, and reaches the conclusion that arterial tension is increased in an atmosphere of rarified air and diminished when the air is condensed. Basch, Schreiber, and Sommerbrodt have also come to the same conclusion by entirely different experiments.—*Deut. Med. Zeit.*

In Calcutta and Rio de Janeiro, places nearly equally dis-

tant from the eqnator, the one in north latitude, and the other in south, we find the same elasticity and expansion of the air exists, and find similar diseases, only modified by the habits of the people. In all warm climates we find different types of disease than are found in cold; and again, different in granitic and mountainous regions than in clay and alluvial districts, which goes to show that topography and climatic influences have more to do with the causes of disease than sewer gases, the fancied ogre of human ills.

Friction of the currents of air charged with electricity produces ozone, which may be prepared by induction and by electrolytic decomposition of water; and it is a well established fact, that when the air becomes ozonized, it irritates the lungs. There are times when this factor is entirely absent, and the oxygen is greatly diminished in any given volume of respirable air, in consequence of the increased expansion; and then the absence of its vitalizing effects upon the blood in the functions of heat and nutrition, becomes the premonition of weariness and disease. This explains why we have more pneumonia during the seasons of dry north winds than in moist weather. These facts are sufficient to prove the elasticity of the atmosphere at the earth's surface, and enable us to proceed intelligently with our investigations. Had barometric tables been kept during the prevalence of cholera, greater accuracy could be presented upon this subject. (When cholera shall visit us again I hope some one will be careful to keep a meteorological table during its prevalence.)

While I do not claim to have had greater opportunities for investigating this subject than other members of the medical profession, a theory presents itself to my inquiry that may lead some gifted mind to a solution of this interesting problem. In the absence of any established facts upon the subject

in reference to the causes, I assume that there is an atmospheric dyscrasia, and draw my conclusions from the hypothesis that there are tidal waves of morbific agencies constantly sweeping over the earth, varying in kind and virulence, producing various forms of disease, and that the *choleric wave* seeks the lower stratum of air, and is attracted to particular formations of the earth by some force *per se*.

As the rationale of my subject, we find that the morbific atmosphere, being deprived of ozone, becomes of much greater elasticity than common air, and coming into the presence of the granite formations, the electric emanations from the earth, lift it high above all animal life and bear it along over the mountains until it reaches the zone of lime and clay, when the wave again descends like an avalanche or pent-up river, and hurries along with relentless force, desolating cities, towns, and hamlets in its course. Should the application of this theory, so well supported by facts, be made to other diseases, more would be accomplished towards reaching the true cause of disease than can ever be gained by burying our opinions in the sewers and cesspools of cities, and following the doctrine of germs and mephitic gases.

Without claiming any power of mind that foreshadows what will or will not take place, my investigation upon this subject convinces me that epidemic cholera will never come to California in ships, but will follow a line corresponding to the ecliptic of the orbit of the earth, and come, as it did in 1851–2, by the way of Canada and New York, west, over the plains. From the topography of the city, and geological formation of the Coast Mountains, San Francisco will suffer less from this disease than Marysville, Sacramento, Stockton, San José, or Watsonville, while in most of the mountain towns the disease will be wholly unknown as an epidemic.

Chemistry affords many interesting examples of catalysis,

as the action of sulphuric acid on starch, forming sugar, and yeast on sugar, producing alcohol, and yet the precise action or method of change is unknown. We also find in isomerism that the same elements brought together in the same ratio, but in different order, produce different results, as in the oil of turpentine and the oil of lemon, and other hydro-carbon products. The equivalents of C10 and II8 produces the oil of lemon, and the equivalents of C20 and H16 produce the oil of turpentine. Thus we see that the same elements brought together in the same ratio, but in different arrangement, produce different results. Without any variation of the ratio of oxygen and nitrogen in the atmosphere, we find different effects are produced upon our bodies, as the volume of these elements change in any given space as the result of the pressure or expansion of heat, cold, or elevation.

With these facts before us we can understand how the air, when most expanded, while retaining the same ratio of nitrogen and oxygen, contains a less quantity of either in the same space, and consequently reduces the standard of vitality in the blood by supplying less oxygen, when weariness and developmental disease follows as a sequence of slow combustion and deoxygenized blood. As a syllogism, whatever causes a perturbation of the molecular forces, promotes disease. Variableness of the atmosphere causes such perturbation; hence great atmospheric changes cause disease. This does not relate alone to temperature, moisture, and dryness, but equally to the expansion of the air.

It has been asserted that the greater the elasticity and expansibility of any gas, the greater is its potency to cause disease. Were this correct, the doctrine of the potency of the *millionth dilution* would be commended to our attention, and fiction would no longer dwell in the presence of the cloistered

student in his investigations, and all the evils contained in the gas of Epimetheus could easily be destroyed. But, without prejudice to a theory, science does not warrant such a conclusion, and we find the converse to be true in the potency of concentration in ether, chloroform, and nitrite of amyl.

The germ theory is also vulnerable, and exposed to criticism. It is found in the "culture," where the bacillus and bactèria are observed together; in a short time the former disappears; and experiments made by Bastian show that in boiled urine no organisms exist, yet upon adding caustic potash to it, immediate.y bacteria are found, showing the spontaneous development of this class of organisms by reagents. So we are led to infer there are no well defiued habits or community rights belonging to these organisms to determine whether they are capable of self-destruction or of destroying one another, but a rational conclusion, based upon observation, is that the spiral bacteria commands the first place, and antagonizes all the other forms. The fact being established that reagents develop bacteria, this evolution or change may be considered in the light of a biological catalysis; and following this theory to its ultimate conclusion, we shall find that primarily reagents gave birth to life and solidity to forms. The tubercle bacillus of Koch, which he considers the cause of tuberculosis, is quite as likely to be dependent upon the disease for its presence, as bacteria found upon any diseased tissue are dependent upon the loss of vitality to the part.

In this age of investigation we must not be led by the *ignis fatuus* of new discoveries to too hasty conclusions, but the indwelling consciousness of soul should be allowed to receive truths as they exist in all the forms about us.

We are accustomed to speak of germs as we speak of the seeds in the different fruits upon our trees; yet the profession

has no common knowledge nor companionship of thought upon this subject, and only mention germs in the most indiscriminate language.

Proliferation and disintegration of tissue as ascribed to germs cannot become mutual factors in the law of compensation regulating the waste and supply of any diseased organ, for there would then be no fixed period of duration for any series of organic development, and life would become an indefinite existence, with waste and growth alike the handmaid of suffering.

Dr. Wm. T. Belfield, in his third "Cartwright Lecture," says: "'Anthrax' is proven to be not only associated with, but also caused by a bacillus. Koch has even induced the disease by inoculation with the one hundred and fifteenth successive 'culture' upon solids."

But this does not prove that the bacterium is primary to the disease, and if not, what practical benefit is medical science to derive from a knowledge that disease may be produced by inoculation with the indefinite 'culture' of the organisms. Pus in an abscess is not the cause of the abscess, but is the result of the molecular perturbation of the tissues caused by inflammation.

Variola is primary to inoculation, and should bacteria be found in the lymph of the vesicle, that fact would not be any evidence that these organisms were the primary cause of the disease, nor would it offer any suggestion by which the disease can be avoided or more successfully treated. The citations of this learned lecturer are full of interest, but the application of his investigations should be reversed and what he considers the primary cause should be assigned to a secondary position.

The maggot in the neglected dressing is not the cause of the sore, but the result of the decomposition of the exuda-

when applied to diseases that arise from individual contact and influence of the atmosphere in the large basins of rivers that are overflowed annually, and whose morbific agencies are swept by the winds high up the rivers; but our nomenclature becomes greatly confused when we speak of "malario-typhoid" as typho-malarial fevers, for, if we have any distinct views of the etiology of such cases, we imply that there are two distinct agents at work at the same time, and shall be liable to direct our treatment to an imaginary foe. The clinical import of a correct diagnosis cannot be over-valued.

During the Autumn months it is not unusual for the wind to blow along the coast from the north three or four weeks, without interruption; and during these seasons we find a large number of people among us suffering from restlessness and nervous irritation. This effect of the north winds was noticed by the old Spanish population long before the Americans settled here, and they were called the *vientos venosas*, or poisonous wind.

In this connection it is proper to allude to the condition of cemeteries within the limits of cities as sources of disease. The popular notion prevails that much sickness arises from the gases of these repositories of the dead. Statistics, however, warrant the opposite conclusion, for sextons and grave diggers, who live in graveyards, are known, in vital statistics, to belong to the class of men who live the longest, and opinions based upon such facts far outweigh all declarations to the contrary. Any legislation to remove the dead from our burying grounds must be guided by some other reason than that of sanitary necesity. So well established is the fact of the longevity of the sexton, that it has become the subject of song:

> "Nigh to a grave just newly made,
> Leaned a sexton old on his earthworn spade;

His work was done, and he paused to wait
The funeral train through the open gate.
A relic of bygone days was he,
And his hair was white as the foaming sea;
And these words came from his lips so thin:
I gather them in; I gather them in."

I would rather live in the city of the dead, where fifty thousand bodies were undergoing decomposition, so far as being secure from any influence likely to bring upon me any disease, than have one cabbage-head by the door of my residence undergoing the fermentive process of decay. This declaration has a higher and more important significance than is found in the selfishness of choice; it has its support in the scientific proposition of the correlation of cause and effect, and bids defiance to the obtrusive rhetoric and logic of non-medical learning. This is the voice of science and investigation, and legislation based upon this view of the subject will receive the sanction of every noble and generous instinct of the heart, and expediency and sanitary necessity will not be confounded.

While science is advancing, new problems presented and solved, and the world is growing wiser, it is a question whether the growth of intelligence is a fair compensation for the loss of physical force, especially if we consider that man originates nothing in himself, and through the "receptivity" of his organism is only enabled to give expression in some compact form to existing facts and eternal truths.

From the evidences around us, we may reasonably conclude that the world is fuller of the forces of mind, irresistibly placing the races of men on a higher plane of intelligence than it is with the germs and organisms that are supposed to be daily undermining the health of man and hurrying him on to early decay.

I present this as a parenthesis, to introduce another branch

of this subject, relating to the moral influences as causes or preventive means of disease: Among the first, I will call your attention to the great religious excitements — not in San Francisco—which produce an increased action in the heart and arteries, stimulating the nervous system, exciting the brain, and generally interfering with the functions of physical life. Judgment becomes submissive to strong emotions and impulses, and exposures to heat, cold, storms, loss of sleep, and violation of all the laws of hygiene, follow in the train of sequences. This is purely the medical view of the subject and its *morale*, for it is morally wrong to do anything that injures health, as feeble health begets peevishness, mental aberrations, and physical suffering. But I must not be understood as speaking against rational worship or creeds, for I hold that a man whose daily life is not guided by some religious sentiment, is like the man described by Shakespeare, "who has not music in his soul." I only allude to the subject in its physiological relations to health and disease, and hold to the text—"let your moderation be known unto all men." Sickness follows as the inevitable result of such needless exposures, and no "divinity" interferes to prevent it. Providence is never harnessed to ambulance to tenderly care for those who are careless about themselves. All great excitements are followed by exhaustive reactions.

The hurry and excitement of the tradesman, the restlessness and care of the banker, the broker and men on 'change, in times of any great financial crisis, are as much predisposing causes of disease as excesses of heat and cold, and far outweigh the influences of sewer gases in producing morbid changes in the physical economy of man.

The loss of property, great and sudden disappointment in any of the important affairs of life, untidy habits and filthy apartments, are all factors in the economy of health,

and are predisposing causes of sickness which the intelligent physician never overlooks.

Intemperance, irregular habits of eating, drinking, sleeping, and violent exercise, are also among the causes of disease, as well as excitements incident to the great struggles of life which disturb the mental forces, encourage exposure, and result in physical prostration, a disturbance of the normal functions, and consequently disease; also, the hidden throes of discontent, swelling the arteries of life and ebbing and flowing in tumultuous convulsions through every avenue of thought and feeling, are among the most potent agencies to overthrow reason and disturb the functions of physical life of all that pertains to health.

Among all the forces to which the functions of health are exposed, "fear" produces the greatest outward manifestation. It is said by the historian, that so great was the anxiety and fear of Marie Antoinette during the night of her flight from Paris to Varennes, that her hair turned white. The poet makes her say:

> "My hair is gray but not with years,
> For it grew white,
> In a single night—
> As men's have grown by sudden fears."

Byron completes this description in his "Prisoner of Chillon," and appeals to the strongest sympathies of human nature, in the tender pathos of his verse.

The many interesting experiments in psycology can leave no doubt but psychic influences cause disease, and those best skilled in biology, and who best understand the psychometric laws of compensation of mental forces, will the most readily secure the patient's confidence and give relief. This subject, connected with medicine, leads to an avenue of thought which carries us beyond the legitimate province of this dis-

cussion. Whatever may be your verdict, I trust you will consider that in preparing this paper I have labored earnestly in the interest of progressive medicine.

In conclusion, Mr. President, ladies and gentlemen, allow me to say: From the earliest dawning of creation, amid the ponderous throes of nature to bring organized matter into living forms, there has been a growing contest with every form of germinating cell for a higher and better defined condition of life as the result of never varying, progressive and inherent forces, and from the voiceless chaos of primeval thought has been evolved the highest order of intellectual beings—man.

To gain practical knowledge so essential to individual success, and the greatest good to our fellow men, we do not look through the prism of fancy nor gaze upon the kaleidescopic objects presented by the rapidly changing phases of daily life, but penetrate, with thought intent, the arcanum which lies beyond, and glean from the intellectual forces all that is of value to science and to art. And in preparing this paper I have endeavored to leave speculation, deal with facts, and follow the true path of science that I might present truths worthy of your leisure consideration.

TWO CASES OF KNIFE-WOUND OF CHEST, AND REMOVAL OF SALIVARY CALCULI.

BY J. BRADFORD COX, M. D.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: The following cases may be of interest to you, owing to some peculiarities of the wounds of the chest, and the rarity of the formation of calculi in the salivary glands:

I will proceed at once to the report of the cases, reserving comment until after their recital. The first is that of a healthy looking Spaniard, aged about forty years, married, a little more than average height and weight, muscles well developed. Saw him first at 11:30 P. M., Tuesday, December 20th, 1881. He was then comatose; pulse not perceptible at the wrist; breathing very slowly—not more than three or four times per minute. This condition of shock, or collapse, was the result of a wound made by a dagger or poignard, nearly one inch wide and about eight inches long. The wound was situated between the fourth and fifth ribs, two or three inches to the right of the right nipple, and on a level with the line made by passing around the body through both nipples.

The knife had entered in such a manner as to make the cut about on[illegible] long, parallel with the ribs, and about midway be[illegible], so that the intercostal arteries were probably [illegible]

[illegible] throat, and ordered other

stimulants from the drug store; probed the wound sufficiently to ascertain that the chest cavity had been penetrated and the lung probably collapsed; sealed up the wound and applied a bandage snugly around the chest. Under the use of stimulants the patient began to breathe oftener, and in an hour became conscious. There was, however, no pulse at the wrist at 1:30 A. M., two hours from the time I first saw him. The patient had received the wound about half an hour before I saw him. He was therefore unconscious for about one hour and a half, and there was no perceptible pulse at the wrist for about two hours and a half, to my certain knowledge, and how much longer I do not know, for I left the patient in charge of his friends, ordering the stimulants continued, and hot applications to the lower extremities; also, a superabundance of bed-clothing over him.

I saw him the next day about 9 o'clock A. M. Reaction was very slowly taking place; pulse very small at the wrist—about one hundred and fifty per minute. The patient answered questions intelligently, which was not the case with all questions the night previous. An examination showed the right lung to be collapsed, and the chest cavity on that side full of blood; gave an unfavorable prognosis; ordered morphia sufficient to control the pains which were now beginning to be felt on that side of the chest. Saw the patient again at 4:30 P. M., and about 10:30 P. M. The pulse and respiration were a little less rapid, but he suffered a great deal from pains in the chest and difficulty of breathing; continued the morphia.

The next day, Thursday, the pulse and respiration were a little less frequent, the temperature 101° to 102°. In the afternoon, about one o'clock, I had the patient carried on a stretcher to the house of relatives, about four blocks distant; used stimulants—whisky and valerianate of ammonia—both before and after moving him. The patient was not injured

by the removal, but benefited as to surroundings and his mental condition, he feeling better contented. The room he had left was only a very little larger than the bed it contained.

The next day the pulse, respiration and temperature remained about the same. The patient expectorated some blood several times during the day. The castor oil given the day before operated. Ordered the following:

℞
Fl'd Ext. Ergot.
Fl'd Ext. Lycop. Virg. aa. oz i.
Tinct. Digital. dr. i.

M. S. Give a teaspoonful every two hours until spitting of blood ceases. Also continue the morphia as required to control the pain.

The next day, Saturday, condition about the same as to pulse, temperature and respiration. About 8:30 o'clock of the previous evening the patient had what his attendants called a spasm, which lasted nearly half an hour. Also another at about ten o'clock P. M. He experienced intense and excruciating pain in the wound and back, before, during, and after each of these rigors; ordered the morphia increased in quantity, which controlled the rigors.

The next day, Sunday, there was a slight diminution in the frequency of the pulse and respiration, the former being 124, the latter 32 per minute. The temperature was 101° in the morning and 102° in the evening. About 5 P. M. the bowels operated and a diarrhea set in, which lasted until I saw him the next day. His attendants stated that he must have had fifteen or twenty operations up to 9:30 the next morning. One which he had while I was with him at this latter time, contained blood. Others, they said, had been similar; ordered the following:

℞
Pulv. doveri,
Acidi tannici, aa. dr. ss.

M. In chart x div. S. Give a powder every three hours, until the diarrhea is checked.

At 5 P. M. of the same day the diarrhea is somewhat better, he having had but two passages since noon. The pulse is much more compressible than before, but not more frequent; it is much smaller, also some perspiration and evidence of exhaustion; respiration, 26; temperature, 101.5°.

Tuesday the condition was about the same; no appetite; ordered chalk mixture and catechu.

Wednesday, condition about the same at 9 A. M.; ordered a dose of castor oil; an enema of starch and laudanum to be given after the oil had operated. By a mistake of the interpreter the patient drank the starch and laudanum at one o'clock, there being a teaspoonful of laudanum, and was given an injection of castile soap and water. I saw him at five o'clock--four hours after drinking the injection. Ye Gods! what a change! The pupils are contracted to a mere point; the pulse is 78 --yesterday it was about 120; the temperature is 99° --yesterday it was 101.5°; respiration not so much affected--it is now 24 --yesterday about 26. The patient is not at all sleepy; says he feels "bully," whatever that may mean. The injection has evidently been of greater benefit to him than if it had been given in the usual orthodox style.

Next day, Thursday, at 9 A. M., the pulse was about 80 per minute, and dicrotic; respiration, 26; temperature, 100°; patient perspiring freely; had considerable pain in the chest during the night. There seemed to be no bad effect from the teaspoonful of laudanum taken the day before, unless the dicrotic pulse is due to that cause. The patient is much reduced in strength, it having now been ten days since the receipt of the wound. The rigors, diarrhea, anorexia, etc., pointing towards septicæmia, and there having been no appreciable change in the physical signs on examination of the chest, and feeling quite certain that the patient could not recover without surgical interference, I decided to perform

paracentesis thoracis at 1 o'clock P. M. Accordingly, at that hour, assisted by Dr. A. L. Prevost and Dr. Thomas Kelly, without the use of any anæsthetic, I introduced the needle of the aspirator between the eighth and ninth ribs, a little posterior to a perpendicular line drawn downward from the right axilla. Immediately rather thick and very dark colored blood began to flow. The pulse was seventy-six before the operation, and one hundred and ten after it. The stream continued until about three pints of blood had been drawn. By changing the position of the patient a little, one-half a pint more was obtained, making three and one-half pints in all. Examination with a stethoscope, and by percussion, now showed that the compressed lung was beginning to expand. This it continued to do, slowly, however, until the vesicular murmur could be heard, at the end of a week, over nearly the entire space normally filled with lung tissue. There was a gradual improvement in all the symptoms, and at the end of a month the patient considered himself entirely well. There was, however, a space of perhaps two inches extending around the body for about one-half the distance occupied by lung on that side, at the lower posterior portion which on percussion gave marked dullness, and on auscultation failed to give the normal vesicular murmur. This condition remained for about six weeks, the date of my last examination of the case, but was very slowly disappearing. Was this dullness the result of retained fluid, or of imperfect expansion of the lung below the cicatrix made by the healing of the knife-wound in the lung tissue? Physical examination failed to show signs of fluid, therefore I incline to the opinion that imperfect expansion was the cause. If so, could it have been avoided by withdrawing the blood sooner? I think not, because the probabilities are that one of the smaller bronchial tubes was severed by the knife, and the healing process probably oblit-

erated its cavity, so that no air could enter the part of the lung supplied by it. And had the blood been withdrawn before the wound in the lung had healed, the expansion would probably have "torn agap the healing wound afresh," and secondary hemorrhage into the cavity would doubtless have been fatal. Some of my medical friends suggested, before the operation, that I might find the blood coagulated. I did not think so, for although I failed to find anything in regard to the subject in my text-books or journals, my experience led me to conclude that blood in large quantities, say more than a pint in any of the cavities or tissues of the body, if the temperature is kept at or above normal, does not coagulate.

It is only for the purpose of contrast that I briefly notice another case, occurring at the same time I was attending the case above reported.

The patient was an American, aged about thirty-five, a laborer, single, of light complexion, average size and weight. On December 27th, 1881, he received a knife-wound between the third and fourth ribs on the left side, about five inches from the sternum. The wound was irregular, patulous, and the air escaped very freely on forced expiration. There had not been very much hemorrhage, although it had been several hours since the receipt of the injury, and the patient had been brought fifteen or twenty miles on a freight train. I sewed up the wound and sealed it with adhesive plasters, put on a good sized compress, and bandaged the entire chest, to avoid if possible the emphysema which under such circumstances would be sure to take place. The wound in the external muscles healed by first intention; not so with the intercostals. Emphysema made its appearance within the first twelve hours, extending to the shoulders, neck, and face.

At the end of about a week the wound in the intercostal

muscles healed, and there was no return of the emphysema. The patient made a speedy recovery, with no unfavorable symptoms. There were signs of a small hemorrhage into the pleural cavity, but these disappeared at the end of two weeks. Could the blood have been absorbed by the serous membrane?

I will now give very briefly a report of a case of removal of salivary calculi from the submaxillary gland.

Mr. J. D., aged 52 years, born in Prussia, a mechanic. In January, 1880, had an inflammation of the right submaxillary gland, which lasted two or three weeks.

Instead of breaking externally, notwithstanding treatment to promote it, it discharged very freely through Wharton's duct, and there had been a discharge of pus through that duct until May 29th, 1882— more than two years.

An examination showed the gland to be of about normal size, but indurated. By pressing on it pus could be made to flow from the outlet of the duct near the frænum linguæ. An ordinary silver probe passed readily along the course of the duct to the gland. The touch revealed either necrosed bone or a calculus, the removal of which I assured the patient would be necessary before he could recover. As he had been under the treatment of one or two other physicians without benefit, he consented. Without the use of an anæsthetic I cut into the gland from the inside of the mouth with an ordinary bistoury, wrapped with a roller bandage, except the point. The probe passed through the duct, and its point being my guide as to where to cut. I removed with bullet forceps two small calculi of the following dimensions: The larger is irregular in shape, with a smooth surface on one end; the remainder of the surface is quite rough. It is thirteen millimeters (a little more than half an inch) long, eight broad, and seven thick. The smaller one is flat, smooth on one side

—where it probably rested against the end of the other—rough on the other side and edges. It is seven millimeters long, five broad, and two thick. They are dirty brown in color, the rough projections lighter than the background, very hard, having the appearance of brown quartz on the smooth surfaces. Internally the larger one is snowy white. It shows under the microscope several forms of crystallization.

The patient made a speedy recovery, and up to the present time no symptoms of the formation of a new calculus have been manifested.

A BRIEF SKETCH OF THE HISTORY OF THE MEDICAL LAW OF CALIFORNIA.

BY H. GIBBONS, SR., M. D.

It has appeared to me that a sketch of the history of the Medical Law of California should be entered on the records of the State Society. With this view I have drawn up rather hastily the following account:

In 1872, Dr. Ira E. Oatman introduced a resolution advising legislation for the protection of society against quacks and impostors. In 1874, the late Dr. Logan introduced the draft of a law on the subject. A free discussion developed some opposition to the measure, on the ground, mainly, that medical legislation in America had hitherto failed in its purpose, and had been generally abandoned. But the great majority of the members fell in with the movement, and the minority, as became all true and loyal members of the profession, withdrew their opposition and mostly agreed to coöperate with their associates in trying the experiment. Accordingly a committee was appointed to draft a bill, lay it before the Legislature, and procure its passage, if possible.

They procured a conference with the Committees on Hospitals of the two houses and other members of the Legislature who were interested in the object. A free interchange of views took place. The question was, not exactly what kind of a law was desirable, but what kind of a law could be put through the Legislature? All were agreed on the main issue,

but it became manifest that no law could be passed restricting from practice Homeopaths and Eclectics. Some compromise was necessary. It was proposed that each of the three classes of practitioners having a State Society organized, should be authorized to appoint a Board of Examiners, who should grant licenses to duly qualified individuals of its class making application therefor. For the first six months the Boards were empowered by the law to examine applicants who had no diplomas, and to issue licenses to such as should be found properly qualified. At the expiration of six months, no license should be granted without the exhibition of a diploma.

The bill thus drafted was presented in the lower House. It passed the House and went to the Senate, where it was crowded out by the pressure of other business and by some members of the Senate hostile to it, until near the close of the session, when another bill was introduced by one of the Senators, containing the leading provisions of the House bill, but modifying it materially in certain parts. This bill passed the Senate hurriedly, and was sent to the House on the last day of the session, or possibly the day previous. It was far from what the committee of the State Society desired, so that the committee hesitated whether to push for its passage. They were advised, however, by several members of the House, among whom were Hon. J. R. McConnell -late Democratic candidate for Governor - then a Representative in the Legislature from Los Angeles, and Hon. John M. Swift, of San Francisco, to accept it as the best that could be done, and as a crude enactment which would give the profession a foothold for future action. Any amendment of it by the House would send it back to the Senate, and would certainly put it to death. Under the circumstances the bill was passed by the House, and having received the signature of the Governor, became a law. This was in 1875.

It has since been amended in several parts, and though improved from the law as first passed, is far from perfect. The Committee on Legislation, appointed last year by this Society, apprehensive that any attempt still further to improve it might lead to its repeal, made no effort to have the law changed.

It is due to Judge McConnell to say, that without his aid no medical law could have passed. His support was brought about by a curious chain of circumstances. Most of us remember the man "Aborn," who flashed up a few years ago as a great "doctor," and who furnished to some of the newspapers so much advertising that people began to think their proprietors were partners in the game. In the midst of what was thought by the public a lucrative and triumphant career, Aborn left San Francisco and went to Los Angeles to gather in the gold of the City of the Angels. A poor woman whose husband was far advanced in consumption, was induced to apply to him on his account. Aborn, whose charges were always princely, promised to cure the sick man for three hundred dollars, paid in advance. The condition of the woman's family excited much sympathy among the people of Los Angeles, and she found no difficulty in raising the money among the wealthy citizens. Aborn was paid, and set to work to cure the patient, whom he treated so effectually that the poor fellow died and was buried in less than a week. The gentlemen who had contributed to the fund of three hundred dollars, heard of it, opened their eyes, and called a meeting, which resulted in the appointment of a committee to wait on the impostor, and require him to return the money to the widow and to leave Los Angeles within twenty-four hours. Aborn was deeply impressed with the visit, and struck his colors immediately, begging that he be allowed to retain enough to pay his way to San Francisco, to which the com

mittee consented, the balance being paid to the afflicted woman. Aborn suddenly disappeared about this time, and never since has risen above the horizon of the Pacific Coast.

Judge McConnell was one of the contributors to the fund, and soon afterwards took his seat in the Legislature at Sacramento. He had learned a lesson which revealed to him the true relations of charlatanism to human interests, and he was not slow in casting his valuable influence against fraud and imposture under the guise of the Healing Art.

At every session of the Legislature since the enactment of the law, efforts have been made for its repeal or for modifications nearly equivalent. Certain members of the profession, possessed by nature of a contrary spirit, or from personal motives, have engaged in these efforts. But they have mostly sprung from the advertising quacks of San Francisco, and to some extent from newspaper men who had large profits through advertising. Money has been raised and lobbyists sent to the Capitol on this business. The exemplary honesty of legislators forbids the suspicion that any of them received portions of this money, except some members of the legal profession who were hired in great privacy and modesty to take the side of quackery against the people, instead of defending the cause of the people. It has required constant vigilance to defeat these insidious measures.

Many individuals in the profession have urged the objection that the law places Homeopaths and Eclectics on the same footing as members of the regular profession. But is this true? Before the enactment of the law, all practitioners, regular and irregular, and all outside sects, stood on the same footing. Graduates of Harvard and of the University of Pennsylvania had no rights not enjoyed by astrologers, necromancers, spirit healers, and the legion of cormorants that infest the outskirts of regular medicine. The Law comes to drive out

the wolves and to segregate the sheep from the goats. The investigation which it institutes reveals the true status of all practitioners in the State. We can now ascertain, without any question, the exact status of every practitioner in the State. That those whom we designate as irregular have licenses to practice does not make them regular. They are not on the same footing with us unless we choose to put them there. It is for us to determine the question, and not the law. The law does not compel us to consult with Homeopaths or Eclectics, or to recognize them in any manner whatever. It simply defines the position of the different classes, enables us at a glance over the general list of licentiates, to discriminate between them. Before its existence, the sheep and goats and wolves, if you allow me a rough simile, were all in the same crowd. Now we know "who is who."

Another benefit arising from the law and the agitation provoked by it, is that the attention of the people has been awakened to the general subject. They have begun to inquire, what means all this turmoil about quacks? The masses seldom think of the difference between one doctor and another, except as they read in the newspapers of the immense skill and the profound knowledge claimed for himself by the advertiser; or unless some kind friend or some runner or procurer, secretly hired for the purpose, enlightens him in the matter. They do not see any difference between a doctor's advertising his business and a small tradesman advertising his peanuts, or his choice Havanas, or his Boca beer and schnapps. They have not yet discovered that the amount of advertising is about in proportion to the ignorance, effrontery and mendacity of the advertiser; that the reason for advertising himself as a great doctor is that no other person knows it or ever will find it out unless he himself proclaims the secret; and that the advertisements

of medical pretenders taken collectively, contain a hundred per cent more falsehood than the same amount of composition in our language on any other subject.

Another prominent objection raised against the law is the difficulty, if not impossibility of enforcing it. Resistance on the ground of unconstitutionality has led to one appeal after another, by quacks convicted in the inferior courts. The higher courts have so often affirmed its constitutionality that this question may be regarded as settled. The difficulty is with juries. As juries are now chosen, it is easy to throw the legal drag-net so that intelligence and honesty shall be excluded, and only ignorant and unprincipled men shall control the result. A jury, the majority of which is capable of perjury, can commonly be obtained. Such cases have occured several times, once notably at Sacramento, where an ignorant oculist was the subject of prosecution. The evidence was plain as noonday that the man had practiced without a license. Nothing to the contrary was offered in defense. But the jury brought in a verdict in his favor, thus openly, shamelessly and wickedly baptizing their souls in the blackest perjury.

It is curious to notice some of the subterfuges by means of which violators of the law escape its operation. In the case of a healer by the touch or by the laying on of hands, a judge in a lower court—lower in more than one sense—decided that professing to heal disease by these means is not practicing medicine, and dismissed the case. The counsel for the accused was an aged man of the strictest morals, who acted his part conscientiously. On being remonstrated with on account of his defending an impostor, he justified his course by referring io the example of Jesus, who healed the sick by the laying on of hands; overlooking the fact that his great exemplar did not advertise for custom, nor charge so

many pieces of silver for every cure, nor fee a lawyer to protect him from prosecution.

As the enforcement of the law—and the same may be said of all laws—depends on juries, and as juries are commonly but reflectors of public opinion, the only remedy for the evil is in building up a sound public sentiment on subjects relating to medical practice. Under monarchical governments arbitrary laws may be enacted and enforced *nolens volens.* But in our free country, liberty, license, and licentiousness are above the laws, and when these are combined with ignorance, constant effort is required on the part of the better classes to make any advance in the right direction—we might almost say to prevent society from lapsing into barbarism.

To correct public sentiment on any important subject is a herculean task. But Hercules, though dead, still lives, and the world is full of heroes, fighting the battles of life and warring courageously against error and evil. Our profession is not wanting in men equal to the task. The present system of education implants in the minds of the coming generation the germs of thought and knowledge, which will develop into a sounder public sentiment, and elevate the masses above the mephitic exhalations which they now respire. The work will be slow and gradual, requiring patient and persevering labor. "*Labor improbus omnia vincit*"—is no new experience. Many of the periodicals of our day are throwing light upon the popular mind by presenting scientific topics in words and illustrations, not only intelligible, but attractive to the common understanding. There is hope in the future. No one can deny that the present medical law has exterminated some of the vermin of quackery. Nor can it be denied that it has done much good in the way of prevention. Quacks and charlatans do not enjoy a climate in which they are liable at any moment to visitation by a customer with a superfluity of

brass buttons on his coat. Doubtlessly scores of itinerant prowlers have had their steps directed from our homes by fear of the medical law.

I have no question that the medical law, with all its imperfections and impossibilities, has been a means of advancing the interests of the profession. It has awakened many a sleepy doctor, and infused in him new life. It has roused the ambition of many, and inspired them with determination to cultivate medical science and to keep abreast of the times. It has been a stimulus to our Society, and helped to place it where it now is—far in advance of its status a few years ago, and with prospects brightening from year to year. In short, the medical law, notwithstanding all that can be said against it, has more than paid for itself.

A word in conclusion, to such brethren in the profession as find it impossible to concur with the great majority in support of the medical law. Does not common courtesy require the recognition of the services performed by the friends of the law, with no other object in view than the general good? This query applies with emphasis to the Board of Examiners. The duties performed by the Board have been laborious, difficult, and onerous. The investigation of the qualifications of every regular practitioner in the State, the prosecution of offenders against the law, the personal attention to appeals, one after another, ending in final success in sustaining the law, the investigation and detection of fraudulent diplomas—these, with other services performed by the Board, entitle them to the gratitude and thanks of every member of this Society and all others of the profession. I would like to designate the Secretary of the Board, Dr. R. H. Plummer, as deserving especially of such consideration.

Then let my dissenting comrades bear themselves in patience until the experiment shall have been fully tried, and

not insist on abandoning the law and throwing away all the work of years and the money expended. Nor should it be forgotten that other States have followed our example and adopted laws more or less like ours, and that still others are preparing to do likewise. In no instance has the law been repealed; on the contrary, such legislation generally commands the favor of the profession and of legislatures. In using all effort to sustain and enforce the law, we of California are but joining the great army of the profession, and fighting in a common cause. Let our motto be, UNION, HARMONY, AND GOOD FEELING. Success will follow.

REPORT OF COMMITTEE ON MEDICAL TOPOGRAPHY, METEOROLOGY, ENDEMICS, ETC.

Importance of Forest Preservation and Timber Cultivation.

BY M. M. CHIPMAN, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: After the earth had performed its annual cycle for an incomputable period, during the cooling off process, the mighty convulsions of conflictiug elements, the gradual formation of soil upon its surface, the development of herb and fruit, and of animal life adapted to his uses and control, then was man created, or, as Mr. Darwin would say, developed, and given dominion over every living thing that moveth upon the earth; and the first commandment received from his Creator was: "Be fruitful and multiply and replenish the earth, and subdue it." And as we examine through the pages of history, whether among the nations who have been conversant with the Sacred Law and Record, or of those who were unacquainted with the Hebraic and Christian systems, we find that the highest physical development, the farthest advance in civilization, and the greatest national power have been attained by those branches of the race who have appeared to be most earnest in carrying out the original injunction. And of the leading men and great thinkers of all ages, those who have been most venerated and

who have earned and received most of the enduring gratitude of their fellow-men, have either been discoverers of additional resources, or organizers of movements in the same general direction of accumulation and advancement; and at this period of human existence no one who claims to be in sympathy with the cultivated humanitarian sentiment of the age, even though not venerating its source, will dissent from the binding force of the vital principles enunciated in the great fundamental law.

If we institute inquiry as to what this last and highest order of animated creation has accomplished in compliance with the great trust devolved upon him, we shall find that a great deal of energy and capacity have been displayed in certain directions; that his seed has greatly multiplied, and that his successors have spread over all the inhabitable parts of the continents and to the isles of the sea; that he has subjugated the animal kingdom and reduced it to his will; and has from the bowels of the earth brought forth the metals and moulded them to his purposes; has brought under cultivation a vast area of earth's surface; and that throughout the whole world we find the results of his toil, the monuments of his intelligent labor, and the specimens of his inventive genius and skillful handiwork; in the great cities of his building; in his massive and beautiful palaces; his immense and numerous systems of public improvement; and in the ingenious and complicated devices for the elimination of force, the propulsion of conveyances, and the transmission of intelligence, whereby the whole civilized world is brought into immediate intercommunication and into close commercial and social relation and interdependence; and to this we may add the many appliances for human comfort, the numerous provisions for the maintenance and care of those who are unable to maintain and care for themselves; a high de-

velopment of art; great advancement in the several sciences, and a comparative general diffusion of education and knowledge. But if we examine farther into the events of the past, and as to the early and present condition of this vice-royal domain, we shall find that this high steward has been, in some respects, to our infinite regret, most derelict and culpable, as the terms of his dominion whilst charging him with the subjugation of the earth in nowise gave permission to destroy any part thereof; on the contrary, the injunction to multiply and replenish as certainly enjoined the principle of conservation, as the lessening in any degree the earth's population-sustaining resources, would to the same extent defeat the primary injunction itself, at whatever future period the population might become so numerous as to require the full measure of its productive capacity. And yet the comparison of ancient history and geography with the accounts of modern travelers and scientists, show that the space of the earth's surface, embracing Northern Africa, Southern and Eastern Europe in part, and Western and Central Asia, that vast central region in which the history of the race had its commencement, and throughout which, in different sections and regions, alternately existed the most populous and most advanced nations of their times, the dominating empires of their respective ages, where were exhibited a display of regal magnificence and splendor unequaled in modern times, has been changed by the occupancy and acts of man himself, either to utter barrenness, in some regions, or in other parts to conditions in which the soil is capable of sustaining only a sparse and impoverished population; that those countries in which the great armies of the ancient Assyrians and Persians, and of the Crusaders and Tartars, in later ages, could, without an organized commissariat, secure adequate supplies in long marches, in our times would scarcely afford forage for a single

regiment, the outlines and remains of broken and decayed internal improvements and the ruins of deserted cities being the only visible evidence of the former fertility, populousness, and opulence.

The late Hon. George P. Marsh, in his work, "The Earth as Modified by Human Action," says:

"It appears, then, that the fairest and fruitfulest provinces of the Roman Empire, precisely that portion of terrestrial surface, in short, which about the commencement of the Christian Era was endowed with the greatest superiority of soil, climate, and position, which had been carried to the highest pitch of physical improvement, and which thus combined the natural and artificial conditions best fitting it for the habitation and enjoyment of a dense and highly refined and cultivated population, are now completely exhausted of their fertility, or so diminished in productiveness, as with the exception of a few favored oases that have escaped the general ruin, to be no longer capable of affording sustenance to civilized man. If to this realm of desolation we add the now wasted and solitary soils of Persia and the remoter East, that once fed their millions on milk and honey, we shall see that a territory larger than all Europe, the abundance of which sustained, in bygone centuries, a population scarcely inferior to that of the whole Christian world of the present day, has been entirely withdrawn from human use, or at best is thinly inhabited by tribes too few in numbers, too poor in superfluous products, and too little advanced in culture and the social arts to contribute anything to the general moral and material interests of the great commonwealth of man."

It is sad to contemplate that this immense region, which at the advent of the human race was the most important, considering climate and productive resources, of any equal contermnous space on the earth's surface, can never be

restored to sustain again its myriad population, or to be the theater of like busy scenes or great events; and it would now appear, in the light of the present, that the woes and desolation denounced by certain of the Hebrew prophets against the powerful nations of antiquity, were just in accordance, measure for measure, with their own improvidence and terrestrial destructiveness. But if we trace this matter still farther we shall ascertain that this destructive tendency has not been confined within the regions which were the seat of ancient empire, but that other parts of Asia have also suffered; that portions of Europe which were comparatively barbarous and uncultivated at the commencement of the Christian Era, have since been worn out and materially deteriorated both in soil and climate; that parts of Africa, beyond the northern countries referred to, have been made poorer by man's occupancy, and other parts allowed to become waste from neglect and lack of protection; and that even both divisions of the continent last opened to the settlement of the cultivating races have already begun to exhibit, visibly, in certain sections, the deteriorating effects of their presence.

And having gone through and collated the works of the available authors upon this subject, I estimate as the sum of their statements that the total lessening of the earth's productive resources, from the advent of man to the present time, is fully equal to and perhaps may be in excess of one-third of its original population-sustaining capacity, and that principally through the wastefulness and incompetence of its human occupants. And were we to calculate the future of the race by its past history, considering the present rate of increase of population, and that the period must soon arrive when the whole of the earth's surface will be in possession of a population necessarily dependent upon agriculture as its

source of food supply, we would reach the conclusion that the acme of its existence is not far in advance—when through the decadence and degeneration of the following centuries it would more rapidly retrograde to a condition equivalent to its prehistoric existence.

It is supposed that the torrid and temperate regions of primeval earth were mostly wooded, and that the clearing of the land to make room for more needed products was one of the first tasks of subjugation; but subsequently, as human settlements increased and extended, forest fires grew in frequency, and with the devastations of war and the uses for building and fuel of large cities, and from other causes, to a great extent carelessness, wantonness, and a lack of forethought, the earth has been so far stripped of its timber growth as to not only cause scarcity in many parts for building and other domestic uses, but with even much more serious result, it has been demonstrated that the excessive forest destruction has been the chief factor in effecting the great detrimental changes in climate and productiveness to which the earth has been subjected.

Charles P. Daly, L.L. D., President of the American Geographical Society, in his annual address before that society for the year 1880, made the following statement:

"The extreme dryness and consequent lack of moisture for the fertilization of the fields in parts of India and China, hitherto fruitful and thickly populated, is attributed to the wanton destruction of the forests on the hillsides, the observations made by Mr. Hilliard, in 1879, in a visit to the famine stricken province of Shan Si, in China, being confirmatory of that view."

The Tartar province of Great Bucharia, only fifty years ago, was a very beautiful, fertile, and productive country, but since that time it has been stripped of its forests by inju-

dicious clearing and by fire, during the ravages of a civil war, and the consequences are that the water courses are dried up, the irrigating canals are empty, and the moving sands of the neighboring deserts being no longer restrained by the barriers of forest, are every day gaining upon it, and the prospect is, will finish by transforming that whole country into a desert as desolate and solitary as those from which the sands are now drifting.

The Russians, in the conquest of the Caucassus, destroyed some of the forests, which served as protection to the contending Circassians, and in so doing changed those districts into a desert.

Spain, which three and a-half centuries ago was the richest and one of the most powerful nations of Europe, owes much of her decadence to the loss of productiveness of her soil, and the consequent impoverishment of her people from the excessive denudation of her territory.

In France, extensive tracts of country, which a thousand years ago consisted of alternate woodland and fertile meadow and farming lands, have, by being stripped bare, become barren and incapable of sustaining but a small proportion of their former population; and Italy has large tracts of the same character, and from the same cause; and several other countries of Europe are also known to have sustained similar loss in a greater or less proportion, and probably there is not a country in that geographic division which has not suffered more or less deteriorating effects from this same cause.

Great damage has been sustained in Switzerland, in France, and in Italy, in the mountain districts and on the level lands adjacent, on account of the washing and abrasion of the sloping lands, the soil, rocks and gravel being carried down to cover and ruin the valleys, because of the clearing off from about the sources of the streams.

In the Italian provinces of Parma and Lombardy, where formerly the crops were pretty well assured, the clearing of the Appenines has materially changed the summer climate, the sirocco prevailing of late years to the great injury of the harvests and vineyards, and some seasons completely ruining the crops.

In some parts of Italy, of France, and Switzerland, the Spring season has been rendered much more backward and more subject to late frosts by the felling of forests which had previously sheltered from the cold winds, which now stunt the vegetation and materially lessen the certainty and success of some kinds of crops; and in other European countries, in some parts of the United States, and in other parts of the world, similar results have been observed.

In South Africa, great changes have taken place in the meteorologic conditions within a comparatively recent period, on account of excessive clearing, the country having become much more subject to drought than formerly, and on the other hand, to sudden and disastrous inundations.

Mauritus, which was formerly a very productive island, and exported considerable amounts of sugar, and was noted for the salubrity of its climate, has been nearly ruined as to its productiveness, and its climate changed so that it has become a hotbed of malaria, because of the destruction of its forests. The Island of Ceylon, and several of the important West India Islands, have been greatly damaged in the same manner; in fact, these instances of injurious effects might be continued almost indefinitely.

Among the results of excessive clearing are the great general meteorologic changes which have adversely affected a vast proportion of the earth's surface, thereby increasing the prevalence of disease and cutting short the duration of human life by the greater accumulation of heat over extensively

denuded surfaces, and the increased force and velocity of the wind and sudden changes of temperature resulting therefrom, the increase in frequency and in extent and violence of cyclones and tornadoes being sequences and effects of the same disturbing cause. And it is now pretty generally understood that the destruction of the forests, especially over the mountainous and hilly regions, where the streams have their sources, is the cause of the growing tendency to increased river flooding in the several respects of frequency, more rapid rising, greater volume and force of current, as well as in extent of inundation, with proportionate increased disaster to the countries and communities involved; the increased prevalence and increased extent of malarious and other diseases, caused by the greater area of land submerged, as consequences which follow later, not being usually included in estimates of damages in such cases. While the scope of this paper will admit of but a small number of the illustrative accounts, and but little of the detail in description and circumstances, yet the investigations are sufficient to prove that the excessive and very general denudation, has been the principal cause of the great physical decadence and injurious meteorologic changes which have been sustained.

When rain falls into a forest, the descent is broken by the limbs and foliage of the trees, and the fallen leaves and other forest litter covering the ground farther protects it from the packing effect of a heavy rainfall, and at the same time restrains the water from flowing off, and the permeable vegetable mold, formed of the decayed leaves and twigs serves as a sponge to hold it upon the firmer soil beneath until it is gradually absorbed, and the roots of the trees conduct it on down into the subsoil. And sometimes the roots themselves will penetrate through subsoil so compact as to be nearly impervious to water, and lead it below into more porous

strata. And thus is the water stored during seasons of superabundance, to break out in springs at points of lower elevation, where the stratum it rests upon, reaches the surface, or to be raised again as required, through the roots and bodies of the trees, and exhaled by the leaves, to perform its office in equalizing the moisture and temperature of the atmosphere.

On the other hand, the open field is exposed to the full force of the elements, and by the beating of the heavy storms, followed by the rapid evaporation from direct exposure to sun and wind, the soil becomes baked and hardened, and when the rain falls there is a tendency to gather into pools and puddles on the surface, or it runs off, carrying the finest particles of the soil with it, and on sloping lands channel-ways form, by which the water is the more rapidly conducted to the streams; and although plowing makes the ground permeable to the depth which the plow reaches, yet wherever there is grade sufficient to establish a current, it also favors the washing away of the soil.

To illustrate effects, under different conditions, we will take as an example two converging water-sheds, embracing a large area of country which is traversed by streams having their sources in the surrounding high lands, and emptying into a larger stream, the common outlet. In case of a heavy rainfall, in the natural wooded condition, the greater part of the water is retained and absorbed, and what is not thus disposed of sipes away so gradually, and carries so little of earthy substance with it, that it but slightly discolors the streams into which it runs, and does not fill the channels beyond their carrying capacity, and the level country along their banks presents no appearance, by abraded surface, deposits of sand and gravel, or by other violence to nature, to indicate the actions of previous floods, and as dry weather

sets in, the forest trees draw from their ample stores the moisture which gives them life and clothes them with verdure, until the close of the season. But let the same country be completely stripped of all its timber growth, and the water of each succeeding rainfall finds its way into the river channels with increased rapidity, as the soil of the naked land grows each year more and more impermeable, and as the channel-ways become more completely cut out, and the dark flood, as it sweeps over the valley farms and submerges the bordering towns, bears on its bosom to the sea and deposits on the fields, in the streets, and in the buildings on its course, and in the channels of the rivers, preparatory for the more extended flood to follow, that which, over the country from which it has been gathered, represented millions in life-sustaining food, in successive crops of grain, of vegetables and of fruits, and during the ensuing summer the streams and springs become dried up and the soil fails to furnish moisture to the growing crops, which dwarf and shrivel because that which was given in due season has run to waste. And this is the commencement of annually decreasing harvests, until the starving inhabitants commence to migrate to other countries in quest of food, and through the increasing sterility, in the course of time, the whole region becomes an uninhabitable desert.

This is but a pen picture of what has already taken place over an immense area of the earth, either according to the full representation or in degree, and is simply the inevitable result of the violation of Nature's immutable laws. It is true that a large proportion of land is required for the production of breadstuffs, fruits, vegetables and pasturage; but the shelter and equalizing influence of forests are equally important, and in countries where the wind currents and meteorologic conditions are such as tend to a scant and un-

certain supply of rain, the maintenance of a certain proportion of woodland is a prime necessity, in order to insure the fruitfulness of the cultivated lands, and to obviate the gradual dessication and deterioration which are sure to follow excessive clearing.

Although the early history of the European nations exhibits a great deal of vandalism, and of wastefulness as to the natural resources of their respective countries, and even in later centuries a lack of wisdom and forethought to take steps to avert very serious consequences, yet after having already suffered occasional want and scarcity of food supply, and having been confronted by the grave problem for the immediate future, they find enforced upon their attention that which has been ignored until quite recently in the past, and which may be stated as follows: How to use the earth without abusing it; or, more perspicuously, how to make a living off the lands in our possession, without impairing their productive capacity, or deteriorating the climatic conditions, in our own day, or for those who are to hold the title deeds after us? And we may hope that the energy of the Caucasian race, and the greater enlightenment of modern civilization may, with some degree of success, be able to cope with the situation.

Forest preservation and forest restoration have been receiving a great deal of attention in some of the countries of Europe, during the last quarter of a century, and most European countries have enacted effective laws for forest protection, and much greater advancement has been made in forestry, in several of those countries, than in the United States. And the fact that forests are there largely held by the respective general and municipal governments, gives opportunity of carrying out measures of forest restoration with less impediment than could be done with conditions of own-

ership which prevail in this country, although in France and in some other European countries, the governments assume control of private forests, to limit the extent of cutting, and to enforce replanting in forest trees whenever it is thought the public interests require it.

The French Government has done a great deal in the way of reboisement, or the restoration of woodlands on denuded tops and slopes of mountains, to arrest the erosion by torrents, which was ruining the lands of the valleys, with rock, gravel and other debris which was being carried down over them. The law of reboisement was passed in 1860, which enables the government agents to take possession of private lands wherever so situated that it is necessary they should be included in the plans of restoration, and in sixteen years from the commencement on the Alps, on the Cevennes, and on the Pyrenees, 63,168 acres had been successfully replanted at an enormous cost, but the whole expense was less than the damage which might have been produced by a single flood.

The Governments of Italy and Switzerland are following the example of France in measures of reboisement.

The Prussian Government, with other steps for the advancement of forestry, has passed laws to encourage the formation of forest companies where the situation is such that tree planting and cultivation can be carried on to better advantage by association than by individual effort, and municipal governments are also encouraged to engage in the work of restoration.

The maritime nations of Europe have given much attention to the reclamation of the sand dunes, and to arresting the movement of the drifting sands of their sea coasts on to the arable lands adjoining and toward the interior. The first recorded efforts in this direction were commenced in Denmark and in France about one hundred years ago, and have

been continued since, in France, on a more extensive scale than by any other nation.

The engineer Bremontier, after having devised methods of restraining and fixing the sands, undertook, under the patronage of the French Government, the planting of maritime pines, which he carried out with great success. The Department of Gascony had one hundred miles of sea coast covered with sand dunes, extending from four to eighteen miles in breadth, back from the beach, and some of the dunes were hundreds of feet in height. Under Bremontier's superintendency all this region was covered with forest growth, and since his time, the work has been continued by the French Government, and at the present time over the whole line of the French Atlantic Coast, one hundred thousand acres of forests, valuable for their productions of turpentine, resin and timber, have been added to the national resources, and a still greater quantity of valuable agricultural land has been rescued thereby from the certain destruction with which it was threatened by the advancing sand hills. And adding to this the beneficial effect upon the climate to the interior by this broad belt of pine timber as a protection from the ocean winds, it will be seen that the results achieved are of very great importance.

George B. Emerson, in a report on the trees and shrubs growing in the forests of Massachusetts, states: that in 1872 he visited the region saved by Bremontier, and that, in the midst of the recovered region, he stopped a day or two at a beautiful town where a hundred thousand persons from Paris and other cities of France, attracted by the genial climate and health giving atmosphere of the pine forests, had passed the Winter. He also states that he saw in many places deciduous trees, oaks, ashes, beeches and others, growing luxuriantly under the protection of the pines.

Schools of forestry have been established in several countries of Europe, and in Germany special plans of training have been adopted, including the acquisition of practical experience, by devoting a certain time to manual labor in tree planting and timber cultivation under the direction of skilled instructors, and graduates of these institutions are eligible to government appointments or to enter the employment, as superintendents, of other parties. There are nine schools of this description in the German Empire. There are several countries in Europe, also, where stations are kept up by the governments for making meteorologic observations to ascertain the comparative conditions of atmosphere, rainfall, etc., as between forest-covered situations and the open fields.

In the United States, forestry is an industry of recent introduction. Congress has passed laws intended to encourage tree planting on the public lands, but without extensive results as yet. But the able and very efficient Chief of the Forestry Division of the Department of Agriculture, has collected and made public through his several reports a vast amount of useful information which, with his many valuable suggestions, is directing attention to the great importance of the subject, and is operating as a stimulus in the development of this neglected branch of agriculture. About one half of the several States of the Union have passed laws to protect and encourage tree planting along the highways, some of them granting a certain amount of exemption from taxation therefor, and a small number have provided cash bounties for successful timber cultivation. The State of California gives one dollar for each thrifty tree planted along a highway, after four years growth. But the association of individuals for the promotion of forestry has apparently effected more than has been accomplished, directly, by State or Federal legislation.

In Minnesota, a State Forestry Association has been formed for the encouragement and promotion of forest culture, by the collection and diffusion of information on that subject, to secure the general observance of arbor day throughout the State, and to promote the ultimate redemption of the treeless regions of Minnesota. This Association gives premiums for the encouragement of tree planting, in which it has been aided by legislative appropriations.

The Iowa State Horticultural Society began, in 1872, to offer premiums to encourage tree planting, and it has printed annually, for gratuitous distribution among planters, a pamphlet containing directions for procuring, storing and planting of seeds, cuttings and plants, with hints on best species and varieties, modes of culture, etc., for artificial forests and shelter belts in that State. This Society has also received State aid.

In the State of Ohio, in January last, a society was formed to be known as the Ohio State Forestry Association, the object being to encourage the protection and planting of forest and ornamental trees, and to promote forest culture—the seat of the Society and place of business to be at Cincinnati, with provisions for branches in the different counties of the State; the Presidents of such branches to be ex-officio members of the State Association.

The first national association for the promotion of forestry was formed in 1875, as the American Forestry Association, of which Dr. John A. Warder of Ohio, was elected President.

Among the guests invited by the Government to participate in the centennial anniversary of the surrender of Lord Cornwallis at Yorktown, in the fall of 1881, were seven Prussian army officers bearing the name of Von Steuben, and representing the family of General Steuben of the American Revolution. One of these officers was, at the

time, Superintendent of Prussian Crown lands. This gentleman, in the course of a journey through the country, had noticed the waste and neglect in the matter of American woodlands, and, when at Cincinnati, took occasion to mention the urgent need of measures for their conservation and renewal. This is believed to have been the first incident in the movement which led to a call for a Forestry Convention at Cincinnati, to be held on the 25th of April, 1882, and the following four days. Many citizens of Cincinnati were active in making preparations for the Convention, and funds were raised to defray the expenses. An immense number of invitations were sent out to all parts of the United States and Canada. Govenor Foster, of Ohio, appointed the 27th day of April as "Arbor Day," and Eden Park, in Cincinnati, was designated as a place for planting a great number of memorial trees in honor of distinguished persons living and deceased. The Convention was largely attended and its exercises were conducted with harmony and enthusiasm, and the results eminently satisfactory- -the most important being the organization of a permanent association to be known as The American Forestry Congress.

An adjourned meeting of the American Forestry Congress was held in Montreal in August, 1882, at which time delegates were present from the American Forestry Association, and this last named Association then became merged in and united with the other movement.

The annual meeting of the Forestry Congress for 1883 is to be held at St. Paul, Minnesota, in August.

This American movement was evidently inaugurated from the most patriotic and philanthropic motives, and the gentlemen who participate in it are men of learning, character and influence, of different sections of the United States and of the Canadian dominions; and I regard it as a most hopeful sign

of progress, and anticipate that by enlightening the people in regard to these matters, and by the influence and example of its members, the American Forestry Congress will lead in rescuing this country and this continent from the degree of ruin which has befallen so large a proportion of the territory of the older countries.

In the States of Minnesota, Nebraska, Iowa and Kansas, forest culture is making encouraging progress, and on many of the farms shelter belts and tracts of timber are becoming a part of the system of agriculture. Two artificial forests are reported from Kansas, of 500 acres in each.

Timber culture is also receiving attention in Illinois, and, to some extent, in other States.

Some of the Eastern villages have been finely improved in the matter of shaded avenues and tree and shrubbery adornment, through the organization of village improvement associations, and it has been found that better results are attained by this concerted action than by individual effort.

The United States is lamentably deficient in agricultural schools, and as to schools of forestry there is but one in America which can be appropriately so named. Harvard University, from endowments provided by the wills of two deceased citizens of Massachusetts—Benjamin Bussey, of Roxbury, and James Arnold, of New Bedford—has a professorship of tree culture, and an aboretum of 137 acres connected with it; but it is doubtful if this endowed school imparts as thorough practical knowledge in that department as the training schools of the other continent.

The State of California extends from 32° 32′ to 42° north latitude, being about 800 miles in length, and 190 miles in average width, with 1,097 miles of sea coast; and its western border is occupied by a range of mountains which reach in places quite to the ocean and form a walled line of sea coast,

and at points project promontories beyond the coast line, and at other places recede enough to leave strips of level land and small valleys between the foothills and the ocean shore; but the general direction is parallel with the coast. This coast range extends nearly the entire length of the State, and its summit varies from 2,000 feet to about 6,000 feet, for the highest peaks, the altitude not being sufficient to retain the snow, as Summer approaches, which covers it at times during the Winter season; but it serves as a barrier against the ocean fogs and the excessive force of the sea breeze, greatly modifying the climate of the interior favorably as to bodily comfort and the production of semi-tropic vegetation. And as if nature in this formation had in view the greatest economy of space combined with commercial convenience and climatic effect, planted this range in timber growth suited in part for fuel and other domestic uses, and in considerable extent with a most magnificent forest tree not found elsewhere, and especially adapted to its situation, thus increasing the capacity of the range as to its climatic influence, and furnishing at the same time an accessible supply of excellent timber and lumber.

It would be desirable, both with reference to the saving of transportation and as to the meteorologic effect, were the surface of the interior valleys alternated with a greater proportion of timber growth; but with the limited area of forest within the boundaries of the State it is distributed to the best advantage for the permanent interests of the population, as the reserve or remoter forests of the Sierra Nevada cover the snow which falls copiously during the Winter season in that elevated region, and restrains its rapid melting and the torrential swelling of the streams and attendant disastrous consequences which would result were the extensive area of the upper western slope of the range a bare surface; and the

snow thus held to go off gradually in the shade of the forests serves as a lasting and permanent source of supply to the streams of this region, which water a large proportion of the valley lands of the State. And these forests, and the timber and brush on the slope lower down, contribute in other important respects to the preservation of the lands both of mountain and valley, and to the accumulation of moisture and the conservation of the water supply, as is proven by meteorlogic observations in similar situations, and by the results of forest destruction in the mountainous regions of the old world.

C. F. Reed, Esq., at the time President of the State Board of Agriculture, in 1868, estimated that a twentieth part of the State was covered with heavy timber, and one-eighth, more or less, with trees of some kind; that within twenty years at least one-third of the whole native supply of accessible timber had been cut off and destroyed, and that judging the future by the past it would only require about forty years more to exhaust the entire present supply. Dr. Gray and others have corroborated the opinion of Mr. Reed; but Dr. A. Kellogg, in a brief article included in the last report of the State Mineralogist, expresses a more hopeful view, saying: "It is evident that the question of timber supply is one about which we need have little care or anxiety, if only our resources in that direction shall receive careful husbandry." But whilst I shall not express an opinion as to which of these somewhat conflicting views is nearest correct, I think, however, that Dr. Kellogg has not calculated the full extent of the probable future market of the Sierra Nevada lumber; as, instead of going no farther east than the Wahsatch Mountains, as according to the doctor's calculation, the eastern lumber resources are so rapidly diminishing that, in my opinion, the time is not distant when California sugar pine

will bear transportation and find market in localities even to the eastward of the Rocky Mountains.

For building purposes, the supply of stone and material for bricks is apparently inexhaustible, and iron can be utilized in that direction to a greater extent than it has been hitherto; and as timber and lumber become scarce and high-priced communities economise in their use.

By the adoption of no-fence laws, and by largely substituting iron wire for lumber, the amount of lumber and timber being used for fencing at the present time is very small as compared with its use for that purpose thirty years ago; and other materials have taken the place, and can still further be made to take the place, of timber and lumber for many purposes without serious detriment. And it is also reported that compressed straw furnishes as good a material for lumber as is manufactured from wood.

As to fuel, nature at a period when none of Earth's inhabitants were sufficiently advanced to require its use, buried of its superabundant products vast stores of fuel to supplement the surface supply in this later period, as might be needed by its teeming population; and the study and investigations of chemists and inventors are already opening out an unlimited store of heat and artificial light which has been long known to exist in one of the most abundant elements in nature but which has hitherto remained locked up from our use for those purposes from a lack of knowledge of a method of obtaining and applying it with economic profit. Through the kindness of Dr. James Nevins Hyde, of Chicago, I have received a communication from Henry C. Rew, Esq., a gentleman who is connected with a company which is now lighting the west division of that city with a kind of gas just brought into use; and works are being constructed at the Elgin watch factory to furnish gas for heating purposes by

the same company. The gas used for heating purposes is water gas, which is manufactured by decomposing steam into its constituent elements, oxygen and hydrogen, by bringing it into contact with incandescent carbon. Water gas burns with intense heat, and Mr. Rew states that there is every reason to believe that it is to become the fuel of the future, as one ton of coal utilized in manufacturing the water gas supplies as much heat as four and one-half tons by direct combustion, with the additional advantage that water gas burns without smoke. The lighting gas of this company is manufactured by charging the water gas with sufficient petroleum to make it illuminating. An inexpensive process, as this is claimed to be, which increases the heating power of coal four hundred and fifty per cent, may certainly be classed among the important and most useful of modern discoveries.

So that, after having studied over the situation and the circumstances bearing upon these questions, I conclude that although an abundant and cheap lumber and fuel supply is desirable, yet, with the economy which is practicable and the substitutes which are abundant as regards the former, and the modern available means of distributing the great supplies of the latter, with the multiplication of those resources by the late discoveries, including the use and application of electricity, and the facility and certainty with which it has been demonstrated that the farming communities can produce supplies for themselves upon their own homesteads, and that although wastefulness of any of Earth's supplies of necessaries is not justifiable, yet that the means of shelter and housing, and lumber for the necessary uses of the world's population, and the supply of fuel for the purposes of personal comfort and domestic uses; the creation of artificial light wherever required, and for the production of the great power which keeps up the busy hum of the machinery of the

Earth's industries and the world's commerce, are so much in excess of the earth's prospective future food-producing capacity that there need be no particular concern at this period in that direction; that the great terrestrial questions for the future populations will be the questions of food and of clothing; and as the accumulation of population favors the development of disease; and as the ignorance, improvidence and wastefulness of the past has greatly deteriorated the earth's general salubrity and sanitary condition, questions of combatting disease and of sanitary reform will also keep pace with those of primal necessity.

Over the greater proportion of the agricultural districts of California there is a liability of receiving a less amount of rainfall in the Winter months with the excess of evaporation which may follow during the growing season than is required to mature the crop; and this being an understood fact, the conditions are therefore a commendable object of study and observation, with the purpose of devising means of successfully combatting this, the greatest natural enemy of our industrial and permanent prosperity. And considering these circumstances, the proportion of woodland in this State was too small when it first came into the possession of the American people; and we have to regret that instead of watching and preserving the area as we found it, the denudation has been extended and the limit of woodland still narrowed down.

The early miners accomplished a proportion of the extensive destruction on the west slope of the Sierra Nevada. Without restraint of law, except of their own making, their temptations were great, and they were so wrapped up in the pursuit of the coveted gold that they were unmindful of other considerations. But the other causes of destruction are in part still continued down to the present time, and these should be looked after and arrested, especially that of

careless and reckless fire-setting, which is responsible for much of the destruction, with nothing whatever to show in return for the loss.

On the Coast Range there has also been a marked diminution of the timbered area, both of the wooded lands which were looked to for fuel supply and of the redwood forests; and the destruction from fire there has also been immense.

S. P. Pharis, who has been engaged with the industries of the redwood forests of San Mateo County for thirty years, mostly in shingle manufacturing, and as a proprietor of considerable tracts of timber lands, has furnished the following statement:

"We have fires in the timber nearly every year, more or less. The most destructive forest fire in San Mateo County occured in November, 1880. The destruction of sawing timber and other property by that fire caused a direct loss of fifty thousand dollars, and I estimate that the damage by stopping the growth of pine, redwood and tanbark oak, and by killing the second growth of different kinds of wood that in a few years would have been of great value, to have been as much more—making the total loss one hundred thousand dollars. There was a very destructive fire in the forests of Santa Cruz County the same year. The last forest fire in San Mateo County occurred in the Fall of 1882. I have worked in the redwoods of this county for the last thirty years, and I think I can say that the bulk of timber destroyed by fire would equal that which has been made use of, although not of as much value, yet as much as one-third of it was good sawing timber. And from what I have heard and know the same estimate might be applied to the timber of Santa Cruz County."

So much of forest fires in San Mateo and Santa Cruz Counties alone, the timbered area of which forms but a small part of the forests of the Coast Range.

Our present State laws for the prevention of forest fires are nearly inoperative, for the reason that there are not officers or men employed to see to their enforcement; and it is quite apparent that our forests will not receive the protection commensurate with the interests involved until an efficient system of mounted patrol during the dry season is adopted, which might be done by the passage of a law granting authority to organize districts in which to elect officers empowered to employ suitable men to see to the enforcement of the regulations regarding the building or lighting of fires in forests, with power to make arrests should it become necessary, to extinguish fires, and to call out assistance in case of its being required.

In a paper presented to the California Academy of Sciences by Dr. Henry N. Bolander, in October, 1875, occurs the following:

"Another beneficial feature of the sequoia sempervirens is the great power it possesses in condensing fogs and mists. A heavy fog is always turned into rain, wetting the soil and supplying the springs with water during the dry season. Springs in and near the redwoods are never in want of a good supply of water, and crops on the Coast Range are not liable to fail. It is my firm conviction, if the redwoods are destroyed—and they necessarily will be if not protected by a wise action of our Government—California will become a desert in the true sense of the word. In their safety depends the future well being of the State. They are our safeguard. It remains to be seen whether we shall be benefited by the horrible experience such countries as Asia Minor, Greece, Spain and France have made by having barbarously destroyed their woods and forests. But with us it is even of a more serious nature. Wise Governments would be able to replace them in those countries, but no power on earth can restore the woods of California when completely destroyed."

And yet the warnings of Dr. Bolander, Dr. Asa Gray, and other learned and competent men who have investigated this subject, have not received attention to produce any effective results. It would, indeed, have been of inestimable advantage to the permanent welfare of this State had our Government have profited by the experience of the nations of the old world and have applied the present enlightened course of forest management of the certain European nations herein referred to in that connection to the preservation of the limited timber tracts of this State. The forests of both mountain ranges should have been surveyed off and their boundaries conspicuously defined, and then turned over to the State Government, with certain restrictions, to be kept as perpetual timber preserves, the timber to be cut only in accordance with certain legally established rules; to leave uninjured all trees under certain dimensions, and on payment to the State of taxes to be applied to defraying the expenses of the surveillance, the maintenance of a forest police, and the work of tree planting in any localities within those boundaries which were bare of timber; with a reserve to the Government of timber for Government uses, and, in acknowledgment of its joint suzerainty, the privilege of levying a light duty on all lumber exported. Such an arrangement, with laws regulating the use of the preserves as stock range, and only on payment of State tax therefor, and prohibiting such use when or in such manner as might prove detrimental to the timber growth, would have insured a lasting supply of forest products to the people of this State, and what is of much more importance, would have been an effective guard against detrimental changes and irregularities in the water supply and in the meteorologic conditions which the destruction of the forests would entail. But that opportunity has been lost, as nearly all the timber lands within the State have already

passed into the ownership of private parties or of corporate companies.

At its last session, the Legislature of the State of New York passed an Act providing for a State park, to be known as the Adirondack Park, to be constituted of the country around the headwaters of the Hudson, and also including a large region drained by the Black, Indian, Oswegatchie, Grass, Racket, Saint Regis, Salmon and Ausable Rivers. The principal object of this Act is the purpose of preserving the forests in order to the maintenance of the waters of those streams for the supply of canals and for hydraulic power. The State owns only a part of the lands within the boundaries of the proposed park, but by withholding lands from sale for arrears of taxes, and by acquiring otherwise as favorable opportunities may offer, the intention is to add to the State's holdings as fast as practicable.

In Wisconsin there is a project on foot of forming a State park of the country including the headwaters of the Chippewa and other rivers. And in Minnesota, of preserving in that way the forests of the headwaters of the Mississippi. And as in California the destruction of the forests would involve the destruction of every other important interest, and and as the entire population is therefore jointly and severally concerned in their preservation, by the desire which all should possess for the welfare and assured means of subsistence of their children and their posterity, and for the future prosperity and greatness of the State, the forests of the State should be brought within the security of State control, and not left to the chances of individual interests and individual caprice. A survey should be made and lines established on both sides of the western or timbered Coast Range, defining the forest limits, and a line established on the west slope of the Sierra Nevada, leaving the forest belts to the eastward,

and the State line might serve in part as the eastern boundary; and within those limits the State should acquire the lands as opportunities should occur, by forfeit for non-payment of taxes, by purchase whenever offered at low figures; and probably the United States Government would cede to the State for such a purpose whatever tracts might not have been disposed of, and individuals might donate tracts, after having stripped off the valuable timber, which in time, if protected, might grow up in timber again, or reboisement might be resorted to where necessary. And as the State continues whilst the lives of individuals terminate, it could afford to wait for such opportunities, until in the course of a generation or two it would have acquired all the territory within those boundaries as Public Forest Reservations.

Having spent a good deal of time in traveling about, and in sojourning at different points in this State in studying the geographic and climatic conditions, I will now make some suggestions as to what might be done to increase its agricultural resources, to favorably modify its climate and to improve its scenery.

The great interior valley of the State is about four hundred miles in length and nearly fifty miles in average breadth, and being almost destitute of timber the wind sweeps down over it from the north without any effective check, and at times of low temperature, when in full force, produces discomfort to animal life and retards the growth of vegetation; and its dessicating effect upon the soil and crops during the Spring and first of the Summer months is frequently the cause of great damage and sometimes of complete crop failure. And when the crop has arrived at maturity, its force is such as to interfere with the labor of harvesting, and not unfrequently produces great waste by threshing out the ripened standing grain.

The following paragraph, taken from the Colusa *Sun* of June 12, 1880, is an illustration of the damage which may be done by the north wind at the approach of harvest time:

"We will not get over half as much for our wheat as we would have gotten if all things had continued as favorable as they were three weeks ago. That was the best prospect we ever saw, and the county would have averaged twenty-five bushels to the acre. There are, at the lowest calculation, 300,000 acres in wheat, which, at twenty-five bushels, would give us 7,500,000 bushels. We shall be highly delighted if we gather as much as 4,000,000 bushels even of the shrunken wheat, which we shall have to put on the market at a reduced price. We placed the loss last week at $1,000,000, or over, but the difference to Colusa County between the full crop which we expected and what we will be likely to get will be, even at the low price we anticipate, between $2,000,000 and $3,000,000. And the wind is still blowing. The ripe grain is being threshed out, and that which is still green, shriveled up. Tehama, Yolo, Sutter, Solano, most of Butte, and the San Joaquin Valley, are in precisely the same condition. The wheat crop of the entire State will be cut short nearly one-half in value by the continued north winds."

It is entirely within the means of human agency to effect a great change in regard to this disagreeable and very unprofitable feature of the climate of that valley. Could belts of timber of forty rods in breadth be extended across the valley, with intervals of seven-eighths of a mile between for cultivation, it would produce very beneficial results. On account of the increased porosity and absorptive capacity which the soil would soon acquire through the permeating and lifting effect of the network of roots, and other favoring circumstances which are present when land is covered with timber growth, so much greater proportion of the rainfall

would be retained and stored in these forest-covered strips as to give them to some extent the character of reservoirs, which, being protected from sun and wind, would serve throughout the season by the exhalations of the leaves of the trees to impart a degree of moisture to the atmosphere. And as the dessicating effect of the wind is in proportion to its lack of moisture and its velocity, this, added to the forcible resistance of the system of cross belts, and the increase of rainfall which might reasonably be anticipated, would so favor the production of full crops and of harvesting without waste, as to add immediately to the profit of grain and hay raising; and under those conditions other kinds of farming, such as the production of sorghum, tomatoes, melons, etc., could be added. And as the leeward during the prevalence of the objectionable winds would be on the sunny side of the timber, under the shelter of the projecting woodland, the orange, the lime, the nectarine, and other semi-tropic fruits would flourish where now their culture is impracticable.

The general effects which would be produced by forest planting in the Sacramento Valley are quite obvious, but as to the increase of the rainfall I will add further: An increased rainfall by restoration of the forests, or by additions to the forest area, has been noted in several countries. Observations made in France by A. Matthieu, Professor of Natural History in the Forest School at Nancy; by Marshal Vaillant, at the Government forests at Fontainbleau and near Versailles; by M. Fautrat, in the forests of Hallette and Ermenonville; and observations also at Asschaffenburg, in Bavaria, and at stations in other countries in Europe—corresponding observations being made in the open fields near each forest—have established the fact that more rain falls over forests than over open fields; and it is well known that moisture of the earth attracts the clouds of vapor, and that

wherever the moister air exists there the condensation will take place most rapidly. If a current of air charged with sufficient vapor under favoring circumstances to culminate in a shower, is wafted over an expanse of naked sun-scorched earth, as it comes in contact with the heated atmosphere the vapor becomes rarified and expanded and passes off into infinity; but on the other hand, if a cloud of vapor is carried over a forest, the lower temperature and the moisture of the atmosphere resting over it favors condensation, and precipitation takes place, and the forest itself not only receives additional moisture, but open country in the immediate neighborhood participates in the benefit. And then, in case of a general rain in the Sacramento Valley, the wind blows up from the southward, and as timber belts would obstruct the north winds, so they would also retard the rain-bearing currents from the reverse direction, and by the longer time in passing enforce a greater amount of precipitation in the valley, leaving less vapor to pass on to the mountains beyond, where the annual rainfall is so abundant that some degree of diminution would produce no injury.

The effect of a limited forest area, surrounded by a great expanse of open country, on the amount of rainfall is not appreciable; but the proportion which I have proposed would undoubtedly produce a decided influence in that particular as well as in the other respects mentioned, with the additional advantages which would follow by the modification of the extreme Summer heat, protection from the cold Winter winds, and the purification from all miasmatic effluvia; which increased salubrity would be in itself an improvement that would add much to the desirability of that section for residence. And the thorough and successful cultivation in timber in that or in greater proportion, would not only greatly increase the general prosperity, but would more than double the value of

the properties, and with the arrest of the progressive destruction from another source, would convert our great valley into one of the finest regions of the Earth.

There are other valleys in this State which would be benefited by giving more attention to forest tree planting. Windbreaks would be of great advantage throughout the Santa Clara Valley, or in any part of it, for the protection to the orcharding and other farming interests, as well as by adding to the beauty of the landscape and the salubrity of the climate; and timber culture would be remunerative for the purpose of fuel where the supply is as remote and the price as high as it is in most parts of that valley.

The Pajaro and Salinas Valleys would both be improved by the introduction of timber cultivation. Timber belts across the Santa Clara Valley of Ventura County would redeem it from its scourge of hot winds which rush down from the Mojave Desert, scorching up its vegetation. In fact, nearly all parts of the State which are adapted to agriculture would be benefited by a resort to artificial timber growth to a greater extent than now prevails.

To line the sides of the highways with trees is an improvement to the farms through which they pass, and a benefit to the roads and to the public; and trees set out on a line at such distances as to form posts to which boards, poles or barbed wire can be attached, have been found to answer an excellent purpose.

The waste places of all farms should be set out in timber trees, and there is a great deal of land in this State which is too poor to cultivate with profit in cereals or other farm products, which would prove fairly remunerative if planted in forest, especially in localities where lumber is dear and fuel is scarce, and the soil would improve under a crop of deciduous trees.

Forest cultivation requires an investment which does not yield immediate returns; but if the trees are set out as thick as they shonld be, after three years' growth the superabundant trees will make fuel and poles for fencing and other purposes, and from that on the forest will need but little attention, whilst the thinning out necessary to make room for the increased growth of the timber yields a constant harvest which will last for a long period; and the other benefits of the forest are always present.

I have pointed out what might be done, and what would result greatly to the advantage of the State, and yet I hardly anticipate soon seeing as general a movement in that direction as I have herein indicated and as would inure to the benefit of the people themselves immediately concerned; but if the more enterprising will take the initiative, I think that others would soon follow their example, and the subject is specially commended to the attention of gentlemen who are in possession of large tracts and of abundant means.

The only statements which I have obtained of the cost of raising, and of pecuniary results of forest culture in this State, are certainly encouraging. The following result, by General Stratton of Alameda County, was taken from an acticle by Robert C. E. Stearns, Ph. D., of Berkeley, which appeared in the January number of the *American Journal of Forestry:*

"General Stratton planted forty-five acres in eucalyptus in 1869. Recently twenty acres of this artificial forest have been cleared to make room for an orchard, and after charging every item of cost, and a yearly rental of five dollars per acre, the net profits, as shown by the owner, are $3,866 on the twenty acres in eleven years."

In May, 1882, I took a look at the fine eucalyptus grove of George A. Nadeau, located seven miles south of Los Angeles

City, which consists of ninety-seven acres in eucalyptus, being the largest artificial forest in the State. The seeds were sown in nursery in December, 1875, and about six months afterwards—that is, in May and June, 1876—the young trees were set out, and at the time I examined them, six years after the replanting, the largest trees were twelve inches in diameter, and the average from eight to nine inches, and from sixty to seventy-five feet in hight. Recently Mr. Nadeau has sent me the following definite statement of expenses, and the present value of the timber:

Cost of trees at the time of setting out, $7.50 per acre; labor of replanting, $5 per acre; expense of after cultivation, $5 per acre; rental of land at $3 per acre per annum amounts to $21 per acre for the seven years; total cost per acre for the seven years' growth, $38.50. The estimated average amount of wood on the land is thirty-five cords per acre, which is worth in that locality $3 per cord, in the tree, giving $105 per acre as the present value of the timber. Or the total cost of the body of timber, $3,734.50, and the present value, $10,185; net profit, $6,450.50.

In a locality where fuel is of less value, there would be less profit in the production of wood; but with that growth, the cultivation would still be remunerative where wood is not worth more than half what it is in that part of Los Angeles County.

In the upper part of San Joaquin Valley, tree planting of any kind has been attended with very little success except in connection with irrigation; but by this artificial method of wetting the soil, large tracts of that valley which formerly presented a desert-like appearance have been changed into productive farms, on which are raised fine crops of alfalfa, corn, sorghum, and various kinds of vegetables; and a large proportion of those irrigated lands are being covered with

vineyards and orchards, the success of vine and fruit growth and the production of fruits having been very gratifying. And to add to the future prospect of this section of light rainfall, it has been ascertained that when the land has been once saturated it requires but a small amount of water, comparatively, afterwards to keep it sufficiently moist, thus leaving a surplus from the lands first brought under irrigation to be carried on to new lands; and the area of irrigated and moist lands is constantly being extended thereby from year to year.

The litigation between the riparian claimants and the colonists is a matter to be regretted, and the fact, which has been shown by experience, that trees are more likely to be injured by frost the following Winter, and that grapes and fruits are not of as good quality when the irrigation is continued until late in the season, might help to a solution of the difficulty, as the time of water-scarcity comes after those interests have done with most of their season's supply; and if a compromise could be effected by arbitration, before a commission composed of competent disinterested men, and an arrangement entered into by consulting the interests mutually of all the parties concerned, and the matter then so fixed that all thereafter would understand their respective rights, it would be better than a continuance of the litigation and uncertainty. There are some streams in this valley which have not been made to do much duty in the way of irrigation as yet, the waters of which might be made available for that purpose. The Tuolumne, Stanislaus and Mokelumne could all be carried in ditches so as to cover large scopes of country well adapted to irrigation; and although it might not be profitable to irrigate for the production of the cereals, yet if each farmer could irrigate a part, perhaps one-tenth of his acreage, so that he might raise trees, fruits, alfalfa and

vegetables, it would add greatly to his resources, increase the value of his land, and be of general utility and advantage; and at the present low rates of interest I think the additional income which it would bring to the landholders would be more than the equivalent of the use of the money required for the necessary improvements. Besides the advantage of the immediate increased production by irrigation, the arrest of the water, instead of allowing it to run off to the sea, and distributing it over the land, there to evaporate, with the protection to the soil by the surface-covering of vegetation, has otherwise a beneficial effect in its general tendency of decreasing, to some extent, the excessive aridity of the climate of the vicinity.

I believe there is a great future for the irrigable districts of California, but irrigation is something of which the American people have very little practical knowledge, except what has been acquired by the comparatively brief experience in this State, and the best methods of economizing, and the most suitable times of applying the water, are proper objects of everyday thought by the irrigating planter; but the question of the preservation of the sources of supply being at the foundation of their prosperity should also be made a subject of study and of watchfulness by every property owner of the valley.

Irrigation has a tendency to the development of miasma, but I am convinced that with proper management and care there need be very little cause of apprehension on that account. The surface of the land should be so leveled and arranged that the water will not stand in pools to stagnate, especially near the dwelling, and the ditches should be kept cleaned out so as to be free from decaying vegetable matter, and care should be taken to have pure water for drinking, as the use of impure water is a very common cause of chills

and fever. The surface water in the San Joaquin Valley is generally unwholesome, but by boring to some depth excellent water is obtained; but in every case where it is necessary to use surface water the expedient of boiling renders the impurities inert, for which purpose an agate vessel is preferable. Filtering does not answer the purpose, as the filter is liable to become foul from putrefying animalculæ retained in its meshes.

J. B. Rumford, who has lived on Kern Island for several years, states that during the first years of their residence there, himself and family suffered with malarial disease, but since having learned how to manage they are exempt from it. He attributes much of the sickness in that section to the use of surface water.

Timber culture, where practicable, possesses all the advantages for the San Joaquin that it has for the northern division of the great valley, and forests, judiciously planted with reference to that object, are apparently the only remedy which can be devised against the disagreeable sandstorms which sometimes prevail in parts of the upper valley; and wood-growing would certainly prove directly remunerative there under favorable circumstances.

Dr. W. J. Prather, of Fresno City, has on his farm, a few miles south of that place, a tract of eleven acres, five years set-out in black locust and Lombardy poplar, which have made a very good growth, this being the largest cultivated woodland I learned of in that county.

The eucalyptus, in the Upper San Joaquin Valley, has in some places made a fair growth, whilst in other localities its cultivation has been unsuccessful. This is owing to peculiarities of soil and to the greater degree of exposure to frost in some situations than in others, and in part, probably, to the difference in cultivation and management; but the experi-

ments which have been made are enough to show that the species which have been planted there are not well adapted to that interior climate.

The eucalyptus, first introduced into California by Colonel Warren, from suggestions of Baron VonMueller, has already proved a valuable acquisition for timber culture, where there has been a proper adaptability of the species planted to the soils and situations. According to VonMueller there are one hundred and twenty species of eucalyptus, and they form the principal timber growth over the greater part of the Australian continent. Some of the species attain only the dimensions of shrubbery, and among them are beautiful flowering shrubs, well adapted to ornamental grounds; and from these diminutive species there are gradations in size, up to species which produce gigantic forest trees, which rival in height the sequoias of California. And these numerous species furnish timber of different characteristics and qualities and adapted to a variety of purposes; and among the products of the native eucalyptus forests are potash, oils, tars, acids, dyes and tans. The different species grow in a great variety of soils, situations and climates, some kinds thriving in the interior arid districts, where the heat is greater than in any part of this State; other species, including those which have been most cultivated in California, are found near the sea coast, and other varieties again cover the mountains at different degrees of altitude, up to the regions of snow and sharp frosts, and with a better knowledge of eucalyptography species of that genus could probably be selected which would be adapted to any desired locality within the State.

The railroad companies, by planting eucalyptus along the lines of their roads, have excellent opportunities of acquiring information regarding the adaptability of the various

species. The article by R. C. E. Stearns, Ph. D., hereinbefore quoted, contains a statement by J. R. Scupham, Esq., of the Central Pacific, from which I take the following: The company have planted of several varieties of eucalyptus hundreds and thousands of trees along the right of way and in plantations. About San Francisco Bay all species flourish, if cultivated when young, but most growth is made by *E. Globulus, E. Cornuta and E. Gigantea.* In the interior valleys these species will not flourish—are not sure even to live save in exceptional places; while the *E. Rostrata* and *E. Viminalis* seem to do well and bear the frost. A rich soil compensates *E. Globulus* for some frost, as is evinced by its flourishing at Delano and at Chico. In a plantation of one hundred and twenty thousand trees at Tipton, Tulare County, well-cared for, nearly all the trees of the first-named group died after struggling along for two years, while the *E. Rostrata* and the like thrive, though growing slowly. The eucalyptus now being set out are selected with proper regard to local climate, soil and situation, as well as to the quality of their wood.

It is well known that forests purify the atmosphere of miasmata, but the eucalyptus possesses this useful function in a great degree. Professor Cichi, of Santa Clara College, is authority, in an article heretofore published, that Pope Pius, in 1868, gave to an association of Trappist Monks a tract of land near Rome, which was so excessively malarious as to be uninhabitable, on condition that they should improve its salubrity. The air was so bad that during the first four years the monks could not sleep on the place, but retired every evening within the walls of Rome to avoid the nocturnal emanations; yet, despite these precautions, twelve of their number died from malaria. But principally through the planting of large numbers of gum trees, the air became so

changed that they were able to take up their permanent abode at their abbey, on the land. Susequently, a law was enacted to expel certain religious orders, including this association of monks, from the country, but the Government remitted the sentence in their behalf on condition that they should set out one hundred thousand gum trees on malarious land in their neighborhood within the following ten years.

Planting with eucalyptus has been attended with great success in reclaiming malarious districts in Algeria, and attention is being directed to it as a means of reclaiming malarious provinces in Italy and in other parts of Southern Europe.

Eucalyptus timber is used largely in ship building in Australia and Tasmania, and being toredo-proof, is very desirable for piling where immersed in salt water, and for other submarine purposes.

There are several stretches of seacoast in this State where the methods of Bremontier might be applied with great advantage, and if the Golden Gate Park Commissioners had funds furnished to enable them to raise a continuous sand ridge of a hundred feet in hight a few rods back of and extending parallel with the beach from the Cliff House to the outlet of Lake Merced, and fix it in its place with trees, shrubs and grasses which would thrive in that situation, a sheltered park of alternate forest and lawn, with shrub and flower-bordered lakelets, might be created to the leeward of it, such as would be the delight and pride of themselves and their fellow citizens; and if not permitted to continue until the maturity of the improvements, they might take pleasure in contemplating the benefits which would accrue to the citizens who will arise to follow in their footsteps and occupy their places.

The "Elements of Forestry," by Franklin B. Hough, Ph.

D., Chief of the Forestry Division of the United States Department of Agriculture, is a book of 380 pages, and contains a great deal of general information on the subject of forestry, as well as practical instruction for the planting and care of forest trees for ornament and profit. This is a very useful work and should be in the hands of every one who is in any manner interested in forestry. A. L. Bancroft & Co. will order the book on application, or it will be sent through the mail, post paid, on receipt of two dollars, by the publishers, Robert Clark & Co., Cincinnati, Ohio.

"Forest Trees of California," by A. Kellogg, M. D., describes our native trees.

"Eucalyptus and Forest Trees," by Elwood Cooper, Esq., gives the most complete account of the eucalyptus of any American work.

The *American Journal of Forestry*, edited by the author of the "Elements of Forestry," is published monthly by Robert Clark & Co., Cincinnati. Price, $3 per annum.

There is no State in the American Union in which as great natural agricultural resources are to the same extent dependent on the conservation of the timber growth, and none in which forest culture would produce as important results, in which there is as much backwardness in that direction as in this State of California. The reasons for this state of things must be apparent to those who have given attention to the subject, and it will not be profitable to occupy space here in discussing them. The thing to be done by those who are already interested is to devise the best means of enlightening the people as to its utility and importance.

The few public spirited gentlemen who have hitherto been engaged in disseminating information pertaining to forestry are entitled to the respect and gratitude of their fellow citizens for their laudable efforts; but individual effort is not

equal to the task of doing what is necessary to be done in this field for the preservation and development of the best interests of the State, and the old adage, "In union there is strength," was never more applicable than in matters of this kind; and I believe that those philanthropically disposed would be able to render each other mutual aid and to accomplish much more by coming together and forming a State Forestry Association after the example of Minnesota and Ohio.

I will close this report with sentiments and language contained in a letter received at the formation of the Ohio State Forestry Association, from that well known statesmau and philanthropist, Hon. Cassius M. Clay of Kentucky. After referring to the thoughtless wastefulness of the American people in the destruction of our native forests, and the results now being experienced from the excessive denudation, Mr. Clay writes as follows:

"What we want now is to arouse public notice to the facts, and to create societies in the several States to act under the patronage and aid of the States, and all concentrating their experience in the National Bureau of Forestry, which can unite with foreign societies and governments and make all knowledge on this subject of world-wide usefulness. For it is not too much to say that nations have owed their rise and fall to these laws of tree growth and rainfall, and that our nation cannot live and ignore them."

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
May 25.	To cash of Dr. Briggs, [illegible]	[illegible]	[illegible]	[illegible] per voucher No. 4	[illegible]
May 25.	To vouchers of Dr. Briggs, [illegible] 3	[illegible]	[illegible]		
June 17.	To cash of Dr. Briggs, dues of members.	50 00	April 9.	By [illegible] Dr. [illegible] No. 5	15 00
1883.					
April 9.	To cash of Dr. Briggs, dues of members.	35 00			
April 9.	To vouchers of Dr. Briggs, voucher No. 5	15 00			$713 15
April 17.	To cash of Dr. Briggs, dues of members.	5 00	April 18.	By balance.	123 25
April 18.	To cash of Dr. Briggs, dues of members.	30 00			
	Total.	$836 40			
April 18.	To balance.	$123 25		Total.	$836 40

ANNUAL REPORT OF R. H. PLUMMER, M. D., Treasurer of the Board of Examiners of the Medical Society of the State of California, for the year ending April 18, 1883.

DR.		CR.	
To cash received from 85 applicants, $5 each	$425 00	By cash, balance indebtedness from last year	$3 80
To cash received from one duplicate, $1 each	1 00	By cash, witness fees in quackery cases	5 00
To balance on acc't of presentation of fraudulent diploma	15 00	By traveling expenses of Secretary, by order Board, as per voucher	66 00
To cash from Society of German Physicians	50 00	By cash, stationery, etc., expenses of office	72 55
To cash from Los Angeles County Medical Society	65 00	By cash paid to attorneys, as per vouchers	575 00
To cash from Santa Clara County Medical Society	29 00	By cash paid to Secretary as per vouchers	250 00
To cash from Society Physicians and Surgeons, Alameda	50 00		
To cash from Alameda County Medical Society	75 00		
To cash from San Francisco County Medical Society	250 00		$972 35
To cash from San Joaquin County Medical Society	30 00	By balance	37 65
To cash from Dr. C. E. Stone, Marysville	20 00		
Total	$1,010 00	Total	$1,010 00

REPORT OF BOARD OF EXAMINERS.

BY R. H. PLUMMER, SECRETARY.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: You will remember the report made at our last annual meeting that during the preceding year one of the Superior Courts of this city (and I am pleased to say that the Judge who presided over that Court was remembered by the profession in this city during the last political campaign and was relegated to private life,) took "snap judgment" against us, declaring the medical law unconstitutional under the new organic law which governs this State.

The Board of Examiners then procured the arrest of an individual, and, by consent, the case was carried to the Supreme Court of this State. Although strenuous exertions were made by the prosecution, a hearing was not obtained until the latter part of 1882, and a decision was rendered in January of the present year, again affirming the validity of the law.

During all this period no warrants could be obtained for the arrest of illegal practitioners. When the decision had been rendered, and the road to further prosecutions cleared, the Board found itself encumbered by an indebtedness to the attorneys who so successfully fought our battles. After consideration it was determined to cancel this obligation before incurring any new ones. The Board then sent out circular letters to all the local societies in this State, asking a contribution for this purpose; and we are pleased to report

and hereby tender our sincere thanks to the following societies for their promptness and extreme liberality.

The following sums were received:

San Francisco County Medical Society	$250 00
Society of German Physicians of San Francisco	50 00
Santa Clara County Medical Society	29 00
Los Angeles County Medical Society	65 00
Society of Physicians and Surgeons of Alameda Co.	50 00
Alameda County Medical Society	75 00
San Joaquin County Medical Society	30 00
Personal contribution from Dr. C. E. Stone, of Marysville	20 00
Total amount received	$569 00

No response was received from the Sacramento Society for Medical Improvement, nor from the Northern District Medical Society.

The Board is therefore glad to come "into port with a clean bill of health." All its financial obligations have been discharged, while a small balance remains in the treasury; and arrangements have been made for further prosecutions under the law.

Soon after the opening of the last Legislature, in January, it was flooded with vicious bills, which had for their object the repeal of the present law and the substitution of one which would completely demolish all bulwarks heretofore thrown around the medical profession, affording protection to the public. Had one of these bills been enacted the vilest charlatanism would flourish under the protecting shadow of the law. The charlatans and illegal practitioners of this city sent two attorneys, bought and paid for with "blood money" wrung from the hard earnings of the ignorant and credulous, to the halls of legislation, where

they spent most of the Winter, laboring in the interest of their clients with a zealousness worthy of a better cause.

Division cast the shadow of its ominous wings over our own ranks. The Sacramento society drafted a very brief bill and presented it to the Legislature, but, in the light of subsequent events, remembering that "in union there is strength," withdrew therefrom its support.

In the midst of all this "confusion of tongues" the Board of Examiners deliberated upon the matter and presumed that, in view of the varied influences at work, if any legislation were enacted it would probably be vicious, determined that it would be best for the interest of the profession and the good of the public that no legislation should be attempted at this session, indulging the hope that this Society will at its meeting in 1884 unanimously adopt some bill which can be presented to the next Legislature with the support and influence of every regular practitioner throughout the State.

Let the members interview their representatives before sending them forth to legislate for or against the good of the commonwealth. If such a course as this be pursued it requires no prophetic eye to see the end.

Acting upon this impulse the Board sent one of its members to Sacramento with instructions to do what in his judgment seemed best to attain the desired end.

We are therefore pleased to report to you that the law stands as it stood at our last annual meeting.

The license collector of this city has made arrangements, and arrests have been made to test the one hundred dollar license clause affecting itinerant venders, viz: Section 6 of the amended law.

Number of meetings called during the year..... 15
Number of applications refused during the year, on the ground of insufficient credentials..... 1

Number of original certificates granted	87
Number of duplicate certificates granted where the original had been lost	1
Total number granted for the year	88
Whole number of certificates granted by this Board since its first organization	1430
Of the licentiates during the year just closed there were graduates of the two medical schools of California	20
Graduates of other American schools	58
Of foreign schools	10
	88
Of these licentiates there settled in San Francisco	29
In other towns and counties of this State	59

Two certificates have been issued which have not yet been delivered or paid for.

List of Colleges from which Diplomas have been Presented during the past year:

IN CALIFORNIA.

Cooper Medical College (successor to Medical College of the Pacific)	8	
University of California	10	
Medical College of the Pacific	2	20

IN CONNECTICUT.

Medical Department Yale College		3

IN DISTRICT OF COLUMBIA.

Medical Department Georgetown University		1

IN ILLINOIS.

Woman's Hospital Medical College	1	
Rush Medical College	4	5

IN IOWA.

University of the State of Iowa	2	
College of Physicians and Surgeons, Keokuk	2	4

IN KENTUCKY.

Hospital College of Medicine		1

IN LOUISIANA.

University of Louisiana		1

IN MAINE.

Maine Medical School		1

IN MARYLAND.

University of Maryland		1

IN MASSACHUSETTS.

Harvard Medical College		3

IN MICHIGAN.

University of Michigan		5

IN MISSOURI.

St. Louis Medical College	2	
Humboldt Medical College	2	
Missouri Medical College	2—	6

IN NEW YORK.

Medical Department University City of New York	3	
Geneva Medical College	1	
College of Physicians and Surgeons	2	
Bellevue Hospital Medical College	2	
University Medical School	1	
Albany Medical College	1—	10

IN OHIO.

Miami Medical College	1	
Medical Department Wooster University	1	
Medical College of Ohio	1	
Starling Medical College	1—	4

IN OREGON.

Medical Department Willamette University		2

IN PENNSYLVANIA.

Medical Department University of Pennsylvania	4	
Jefferson Medical College	3—	7

IN VERMONT.

University of Vermont		1

FOREIGN SCHOOLS.

The Board of Directors of Studies of Mexico	1	
Royal College of Surgeons, Ireland	1	
University of Wuerzburg, Bavaria	1	
Royal College of Naples, Italy	1	
Royal College of Surgeons, London	3	
University of Seville, Spain	1	
Faculty of Medicine of Paris, France	1	
McGill University, Canada	2	
Victoria University, Toronto, Canada	1	12
Total		87
California Colleges represented	2	
Other American Colleges represented	29	
Foreign Colleges represented	9	40

Respectfully submitted on behalf of the Board of Examiners.

CONSTITUTION AND BY-LAWS OF THE SOCIETY.

ARTICLE I.

TITLE OF THE SOCIETY.

SECTION 1. This institution shall be styled "THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA."

ARTICLE II.

MEMBERS.

SECTION 1. The members of this Society shall consist of delegates from permanently organized local medical societies, ordinary and honorary members, who shall collectively represent and have cognizance of the common interests of the medical profession in the State of California.

SEC. 2. Each delegate from a local society shall hold his appointment for one year, and until another is appointed to succeed him, and shall participate in all the business and affairs of the Society on paying the usual dues of five dollars.

SEC. 3. Each local Society shall have the privilege of sending to this Society one delegate for every five of its regular resident members, and one for every additional fraction of more than one half that number of its members.

SEC. 4. Qualifications for membership shall consist of a good primary and medical education, attested by a diploma from some known medical school of good repute, and a good professional and moral standing in the community in which such candidate may reside. A license from the Board of Examiners of this Society shall also be required of every candidate.

Ordinary Members—Every physician who shall properly

satisfy the Board of Censors by the exhibition of his diploma that he possesses the necessary qualification as prescribed, may become an ordinary member of this Society, and all those who may thereafter serve in the capacity of delegates to the Society, together with such other persons as may receive the appointment by unanimous vote, shall thereby become permanent members; *provided*, that no physician shall be considered eligible to membership who may reside within any location where there is a local medical society and who has failed to become a member thereof, unless there be some special reason assigned for his election; and no voucher or vouchers of any member or members shall be taken as satisfying evidence of any applicant's qualification for membership.

SEC. 5. Honorary members shall consist of such distinguished *savants* and others as may be deemed worthy of the compliment. They shall receive their appointment by a vote of the Society, and upon motion of some member present.

SEC. 6. Each individual, prior to taking his seat as a member of the Society, must sign the Constitution, inscribing his name and address in full, specifying in what capacity he attends, and if a delegate, the local society which he represents. Every member shall be entitled to the diploma of the Society, to which shall be attached the seal* of the Society, and the signature of the President and Permanent Secretary.

SEC. 7. The Seal of this Society shall always be kept by the Permanent Secretary.

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*The seal that has been adopted shows enough of the beautiful design of the seal of the State to declare the common origin of the Medical Society and of the State of California, while the cock that was wont to be sacrificed to Esculapius, representing "Vigilance," is crowing out 1870, the year of re-organization; and the serpent, emblematic of "sagacity and long life," lies entwined around the doctor's staff at his feet. Thus Vigilance and Sagacity typify the qualities a physician should possess under the direction of Minerva.

ARTICLE III.

OFFICERS.

SECTION 1. The officers of the Society shall be President, four Vice-Presidents, one Permanent and two Assistant Secretaries, a Treasurer, and a Board of Censors of five members. These officers shall be nominated by a committee of one member from each county represented on the morning of the second day of the meeting, and be elected by ballot, except Permanent Secretary. Each officer shall hold his appointment for one year, and until another is elected to succeed him.

SEC. 2. The President shall preside at the meeting, preserve order, give a casting vote in case of a tie, and perform all other duties that custom and parliamentary usage may require. He shall organize and open the meeting next succeeding his election, by an address on some subject connected with medicine, or with the interests of the Society. He may also fill by appointment all vacancies that may occur from death or other causes.

SEC. 3. The Vice-Presidents, when called upon, shall assist the President in the performance of his duties, and during his absence, or at the request of the President, one of them shall officiate in his place.

SEC. 4. The Permanent Secretary shall authenticate the proceedings; give due notice of time of next meeting; serve as a member of Committee on Publication; preserve the archives and unpublished transactions of the Society; hold correspondence with other permanently organized societies, both domestic and foreign, and see that all the published transactions are promptly distributed to the members entitled to receive them. This officer shall not be subject to annual election, and shall not be removed except for cause shown.

SEC. 5. The Assistant Secretaries shall record the minutes, notify members of committees of their appointment, and of

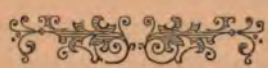
the individual or individuals thus offending shall municated, and deprived of all the privileges of ip.

The Society shall have jurisdiction in all cases of ken from auxiliary societies, in which event their shall be final.

ARTICLE XI.

AMENDMENTS AND ALTERATIONS.

ION 1. No amendment or alteration shall be made in the Articles of this Constitution except at the annual ng next subsequent to that at which such alteration or dment may have been proposed, and then only by the rrence of two-thirds of the members in attendance.



On Indigenous Botany and the Domestic Adulteration of Drugs.

On Public Hygiene and State Medicine.

On Histology and Microscopy.

On Mental Diseases and Medical Jurisprudence.

On Medical Education.

On Publication.

On Arrangements.

On Prize Essays.

On Gynecology.

On Diseases of Women and Children.

On Opthalmology.

On Necrology.

SEC. 2. The Committee on Practical Medicine and Medical Literature shall prepare an annual report on the more important improvements effected in this State in the management of individual diseases; the improvements and discoveries which may have been made in Anatomy, Physiology, General Pathology, Therapeutics, and Medical Jurisprudence.

SEC. 3. The Committee on Surgery shall prepare an annual report on all the important improvements in the management of surgical diseases effected in the State during the year, and, as far as can be ascertained, the number of capital operations performed, with their results.

SEC. 4. The Committee on Obstetrics shall prepare an annual report on the important improvements in the obstetrical art, and in the management of diseases peculiar to women and children, effected in the State during the year, together with such remarks touching these subjects as they may think proper.

SEC. 5. The Committee on Medical Topography, Meteorology, Endemics, and Epidemics, shall prepare an annual

report on the peculiarity of the soil and climate of the different sections of the State, with the diseases to which they are subject; also, the endemics and epidemics which have prevailed throughout the State during the year.

SEC. 6. The Committee on Indigenous Botany and the Domestic Adulteration of Drugs shall prepare an annual report on the indigenous medical botany of the State of California, paying particular attention to such plants as are found to possess valuable medicinal qualities and are not accurately described in standard works, and the localities where they are found. Also, to report on the quality of drugs brought to our market, with the view to correct the evils arising from the extensive introduction and sale of spurious and sophisticated articles.

SEC. 7. The Committee on Public Hygiene and State Medicine shall prepare an annual report on all subjects germane to this important branch of medical science.

SEC. 8. The Committee on Histology and Microscopy shall report and demonstrate such valuable facts and discoveries, annually, bearing directly or indirectly on medicine and surgery, as they may think proper.

SEC. 9. Committee on Mental Diseases and Medical Jurisprudence. This committee shall report on all psycological questions, and on such matters appertaining to medical jurisprudence as in their judgment may be deemed advisable. The duties of these committees shall be defined by a committee of three, appointed by the President for that purpose.

SEC. 10. The Committee on Medical Education shall prepare annual reports on the general condition of medical education in the State of California, as compared with the state of medical education in other States of the Union, noticing the several medical institutions of the State, their course of instruction, the practical requirements for graduating, the

modes of examination for conferring degrees, and the reputed number of pupils and graduates at each during the year; together with such other matters as they may deem worthy of consideration in reference to medical education and the reputable standing of the profession.

SEC. 10½. The President shall annually appoint a Committee on Medical Legislation, whose duty it shall be, by all lawful and honorable means, to promote the passage of Acts of legislation approved and recommended by this Society, with discretionary powers in emergencies.

SEC. 11. The Committee on Publication—of which the Permanent Secretary must constitute a part—shall have charge of preparing for the press, and of publishing and distributing, such of the proceedings, transactions and memoirs of the Society as may be deemed worthy to be published.

SEC. 12. The Committee of Arrangements shall be composed of members residing at the place at which the Society is to hold its annual meeting, and shall be required to provide suitable accommodations for the meeting, to report on the credentials for membership, and to receive and announce all voluntary communications made to the Society.

SEC. 13. In order to afford the Committees on Medical Topography, Meteorology, Endemics and Epidemics, and on Indigenous Botany and the Domestic Adulteration of Drugs, material for their several annual reports, it shall be the duty of the several auxiliary societies in the State to transmit to the Chairman of these respective committees, on or before the first day of March of each year, a special report embracing such information touching their particular localities as may enable said committees to make full reports on all subjects committed to them.

SEC. 14. The standing committees shall constitute sections, after the manner of the American Medical Association,

to whom all papers shall be referred upon the first day of the session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also, those that seem of sufficient importance to be read before the Society, by title, abstract, or *in extenso*, upon the second day of the meeting.

ARTICLE VI.

VOLUNTARY CONTRIBUTIONS.

SECTION 1. After the reading and discussion of the annual reports, or at any other period during the meeting of the Society, by the vote of two-thirds of the members present, it shall be the privilege of any member to present to the consideration of the Society, either orally or in writing, communications on medical subjects, reports of interesting cases; or such other matters as may be deemed of interest to the profession, which communication may on motion be referred to the Committee on Publication, and if deemed by them worthy of preservation shall appear among the proceedings.

ARTICLE VII.

FUNDS AND APPROPRIATIONS.

SECTION 1. The funds of this Society shall be raised by individual voluntary contributions, by the sale of its publications, and by an annual tax of five dollars on each member of the Society, on the payment of which he shall be entitled to a copy of all the publications for the year.

SEC. 2. The funds thus raised may be appropriated for defraying the expenses of the annual meetings; for publishing the proceedings, memoirs and transactions of the Society; for enabling the standing committees to fulfill their respeetive duties, conduct their correspondence, and procure the material for the completion of their stated annual reports; for the encouragement of scientific investigations by prizes and

awards of merit, and for such other purposes as the Society may from time to time direct.

SEC. 3. Any member who shall fail to pay his annual dues for two successive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of such membership; and no member so dropped shall be reinstated in his membership until he shall have paid all arrears due by him.

ARTICLE VII.

DELEGATES TO THE NATIONAL MEDICAL ASSOCIATION.

SECTION 1. The Society shall annually appoint, to represent it in the American Medical Association, one delegate for every ten members, and one for every additional fraction of more than one-half this number, whose certificates of appointment shall be signed and duly authenticated by the President and Secretary.

ARTICLE IX.

CODE OF ETHICS.

SECTION 1. The Code of Medical Ethics recommended by the National Medical Association, held in Philadelphia, in May, 1847, having been approved and adopted by this Society, shall have the full force and effect of any Article of this Constitution.

ARTICLE X.

DISCIPLINE OF MEMBERS.

SECTION 1. Any violation of the provisions of the Constitution or of the Code of Ethics adopted by this Society, shall be referred to the Board of Censors, for adjudication, from whose decision an appeal may be taken to the Society. Such violation being reported by the Board of Censors to the Society, and established to the satisfaction of a majority of the

members, the individual or individuals thus offending shall be excommunicated, and deprived of all the privileges of membership.

SEC. 2. The Society shall have jurisdiction in all cases of appeals taken from auxiliary societies, in which event their decision shall be final.

ARTICLE XI.

AMENDMENTS AND ALTERATIONS.

SECTION 1. No amendment or alteration shall be made in any of the Articles of this Constitution except at the annual meeting next subsequent to that at which such alteration or amendment may have been proposed, and then only by the concurrence of two-thirds of the members in attendance.

ORDER OF BUSINESS.

The following order of business is presented as a By-Law of the Society, which shall at all times be subject to a vote of a majority of all the members in attendance, and except temporarily suspended, shall be as follows:

I. Organization of the meeting.

II. Report of the Committee of Arrangements on the credentials of members, after the latter have registered their names and addresses, etc.

III. The calling of the roll.

IV. The reception of members not present at the opening of the meeting, and the reading of notes from absentees.

V. Reception of members by invitation.

VI. The reading and consideration of the stated annual reports from the standing committees.

VII. Reading and discussion of voluntary contributions.

VIII. The election of officers and place of annual meeting, and appointments by the President elect to fill the standing committees.

IX. Resolutions introducing new business, and instructions to standing committees.

X. Unfinished and miscellaneous business.

XI. Reading of the minutes of the session about to conclude.

XII. Adjournment.

AMENDMENTS TO CONSTITUTION.

ARTICLE II, SECTION 4. Provided, that no physician be elected a member of this Society from a county having a local society, unless he be a member of the same, or unless there be some special reason for his election.– [1872, October 10th.]

ARTICLE IV, SECTION 1. Amended by striking out in the second line the words "second Wednesday in October," and inserting "second Wednesday in April," as the time for holding the annual meeting of the Society.

ARTICLE III, SECTION 4. Making it obligatory upon the Permanent Secretary to reside in Sacramento, striking out that clause requiring the meetings of the Society to be held in Sacramento, leaving the choice of such place with each session of the Association.—[1873, April 10th.]

ARTICLE IV, SECTION 1. Changing the time of meeting to the third Wednesday in April. [1873, April 10th.]

ARTICLE VII, SECTION 3. Any member who shall fail to pay his annual dues for two consecutive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of his membership; and no member so dropped shall be reinstated in his membership until he shall have paid arrears due by him. -[1874, April 21st.]

ARTICLE V, SECTION 14. That the standing committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also, those that seem of sufficient importance to be read before the Society, by

title, abstract, or *in extenso*, upon the second day of meeting. [1874, April 21st.]

ARTICLE II, SECTION 4. After the word "Censors," add "by the exhibition of his diploma;" and after the word "election," add "and no voucher or vouchers of any member or members shall be taken as satisfactory evidence of any applicant's qualification for membership."—[1875, April 19th.]

ARTICLE II, SECTION 4. "Shall be entitled to permanent membership," to read "shall thereby become permanent members." [1875, April 19th.]

ARTICLE III, SECTION 1. After the word "ballot," add "except Permanent Secretary."—[1877, April 18th.]

ARTICLE III, SECTION 4. After "them," add "this officer shall not be subject to annual election, and shall not be removed except for cause shown."—[1877, April 18th.]

ARTICLE II, SECTION 6. After "the" be added "signature of the President and Permanent Secretary."—[1878, April 18th.]

ARTICLE II, SECTION 4. A license from the Board of Examiners of this Society shall also be required of every candidate. [1878, April 18th.]

ARTICLE III, SECTION 4. Strike out the words "shall reside in Sacramento."—[1881, April 21st.]

ARTICLE V, SECTION 1. Add the words, "on Gynecology; on Diseases of Women and Children; on Opthalmology; on Necrology." [1881, April 21st.]

ARTICLE V, SECTION 9. Add the words, "the duties of these committees shall be defined by a committee of three, appointed by the President for that purpose."—[1881, April 21st.]

ARTICLE V, SECTION 10½. The President shall annually appoint a Committee on Medical Legislation, whose duty it shall be, by all lawful and honorable means, to promote the passage of Acts of legislation approved and recommended by this Society, with discretionary powers in emergencies.—[1881, April 21st.]

RESOLUTIONS RELATING TO THE GOVERNMENT OF THE SOCIETY.

Resolved, That a committee of three be appointed by the Chair to secure the passage of an amendment to the laws organizing the State Board of Health, to enforce the registration of deaths, births, etc., to enable the Board of Health to secure more complete statistics in relation thereto.—[1870, October 20th.]

Resolved, That a committee be appointed by the Chair to present to this Society, at its next meeting, any amendment which may be advisable, in their judgment, to the present law regulating the registration of births and deaths.—[1870, October 20th.]

Resolved, That the fact of a doctor of medicine being engaged in the manufacture and sale of any secret or patent medicine, or in way promoting the use of them, shall render him ineligible as a member of this Society. [1871, October 12th.]

Resolved, As a sense of this Society, that the subject of medical ethics should receive a larger share of attention in medical universities and colleges of the country, to the end that the true principles inculcated therein may be more thoroughly impressed upon the minds of the students, and, in consequence, more faithfully and scrupulously observed by them in their subsequent professional career. [1871, October 12th.]

Resolved, That the Board of Censors shall recommend no candidate for membership until he shall have presented his diploma or other evidence of being a graduate of a recognized

school, and of good standing; and that no voucher of a single member shall be considered sufficient evidence of his qualifications.—[1871, October 12th.]

The Secretary was instructed to notify the committees of their appointment as soon as made by the President; also, that the Chairman of each committee be requested to notify each member of said committee of his appointment.—[1872, October 10th.]

Resolved, That the Committee on Revision of the Constitution and By-Laws be instructed to introduce into the code a law requiring the reading of the minutes of each session at the conclusion of the same.—[1873, October 10th.]

Resolved, That a Permanent Secretary be elected for the Society, who shall be paid for his services, and that an additional Assistant Secretary shall be appointed each year by the President at the place of the future meeting. The salary of the Permanent Secretary to be fixed by the vote of the Society. [1873, October 10th.]

Resolved, That the Permanent Secretary be allowed a salary of one hundred dollars.—[1874, April 10th.]

Resolved, That the Chairman of the various standing committees hereafter present a synopsis of their several reports, the reading of which will be considered as fulfilling the provisions of the Constitution.—[1874, April 10th.]

Resolved, That the Publishing Committee be instructed to make out an alphabetical list of the members, together with their places of residence, for the Society, and have the same published in the next volume of Transactions.—[1874, April 10th.]

Resolved, That the President and Secretary be authorized to issue credentials to any member of this Society who desires to attend the meeting of the American Medical Association as a delegate.—[1874, April 10th.]

Resolved, That the Secretary be authorized to issue credentials to any member of the society desirous of visiting any foreign medical association.--[1875, April 10th.]

Resolved, That this Society recognizes the diplomas of the Toland College, and places its graduates who are now members of this Society, or who may hereafter apply for membership, on the same footing as the graduates of other regular schools.—[1875, April 21st.]

Resolved, That the original founders of this Society are permanent members, and liable to yearly dues, and that all members once admitted are liable to yearly dues, whether simply as a delegate or otherwise. -[1875, April 21st.]

Resolved, That a committee of five members be appointed for the purpose of promoting the organization of County or District Societies.- [1875, April 21st.]

Resolved, That the San Francisco Medical Benevolent Society be and the same is hereby recognized as a local medical society within the meaning of the Constitution of the State Medical Society, which requires its members to belong to a local medical society, when there is one where they reside.—[1875, April 19th.]

On motion, it was ordered that the actual expenses incurred by the Board of Examiners be paid by the Treasurer of the Society.- -[1875, April 19th.]

Resolved, That this Society indorse the views of the President as to the importance of the creation of local Boards of Health in every incorporated city and town in the State, and recommend the invocation of legislative aid in the promotion of so desirable an object. - -[1877, April 18th.]

Resolved, That the practice of making annual contracts with individuals or societies for medical attendance is not only derogatory to the dignity of the profession, but is an actual violation of the code of medical ethics adopted by the

American Medical Association, as well as the code adopted by this Society.—[1877, April 18th.]

Resolved further, That the name of any member of this association who shall hereafter make or renew a contract for annual medical attendance upon individuals or societies, shall be stricken from the roll of the same.—[1877, April 18th.]

It was ordered that the actual expenses incurred by the Board of Examiners of this Society be paid by the Treasurer of the Society; who shall also pay such expenses of litigation as may deemed necessary and expedient in order to carry out the objects of the law under which they were elected.—[1877, April 18th.]

Resolved, That the Publication Committee be requested to insert in the proceedings, in a collective form, all the changes in the Constitution, and the resolutions relating to the government of the Society, which have been adopted from time to time.—[1878, April 17th.]

Resolved, That the several local medical societies and Boards of Health throughout the State be requested to urge their respective city, county and town authorities to establish ordinances or laws requiring all practitioners of medicine within the limits of their respective jurisdictions to report in writing to their respective Boards of Health all cases of the more dangerous epidemic diseases coming under their professional observation.—[1878, April 17th.]

Resolved, That the Secretary of the Board of Examiners be instructed to communicate with the local medical societies, and urge that they prosecute violations of the medical law, and that they report progress from time to time to the Board of Examiners.—[1878, April 17th.]

Resolved, That this Society appeal to all ministers of the gospel throughout the State, and urge them to use their influence, in all proper and available ways, to discourage the inhu-

man, degrading, and extensively prevailing practice of feticide.—[1878, April 17th.]

Resolved, Whereas, in consequence of the silence of the profession, the regular practice of medicine is very generally characterized as *allopathy* by the secular press, by medical dogmatists and sectarians, and by the public at large, and the epithet, *allopath*, applied to its individual members, through ignorance to a great extent; that the name was introduced by Hahnemann, to give distinction to his homeopathic dogmas; therefore,

Resolved, That we, the Medical Society of the State of California, in unison with the regular profession throughout the world, do hereby utterly repudiate the name of *allopath*, as applied to ourselves, or *allopathy*, as applied to our practice; the regular profession of medicine knowing no sectarianism in medicine, practicing no exclusive dogma, or in any way restricting its legitimate members in the treatment of their patients, but, on the contrary, giving them the fullest latitude to use any remedy or any means whereby the welfare of the sick may be promoted, their health insured, or their lives prolonged.—[1879, April 16th.]

Resolved, That the Medical Society of the State of California respectfully request the American Medical Association, at its next annual meeting, to memorialize the Congress of the United States to pass a law requiring the proprietors of all patent or proprietary medicines offered for sale in the United States of America, on and after July 1st, 1880, to accompany each bottle, box, and package of such medicine with a printed label or circular, plainly stating all the medicinal and other substances contained therein, and their relative proportions; or to adopt some form of legislation that will accomplish the purpose herein contemplated. [1879, April 17th.]

STANDING COMMITTEES

OF THE

Medical Society of the State of California, for 1883-1884.

Practical Medicine and Medical Literature—H. Gibbons, Chairman; H. S. Orme, W. S. Thorne, W. R. Cluness, A. H. Agard.

Surgery—Robt. A. McLean, Chairman; A. B. Nixon, F. W. Todd, E. H. Woolsey, W. C. Jones.

Obstetrics—John Scott, Chairman; T. H. Pinkerton, G. G. Tyrrell, Benj. Cory, C. Blake Brown.

Medical Topography, Meteorology, Endemics, and Epidemics—H. Worthington, Chairman; John Leconte, J. S. Adams, T. A. Snider, T. M. Todd.

Indigenous Botany and the Domestic Adulteration of Drugs—Wm. P. Gibbons, Chairman; Jas. Simpson, Thos. Ross, Benj. Shurtleff, A. Kesseler.

Public Hygiene and State Medicine—F. W. Hatch, Chairman; Washington Ayer, A. W. Saxe, J. P. Widney, Wm. M. Brown.

Histology and Microscopy—Joseph H. Wythe, Chairman; Joseph Leconte, G. M. Sternberg, R. Hunt, C. G. Kenyon.

Mental Diseases and Medical Jurisprudence—G. L. Simmons, Chairman; Asa Clark, F. W. Hatch, Jr., G. A. Shurtleff, E. F. Wilkins.

Medical Education—W. F. McNutt, Chairman; L. C. Lane, Benj. Knight, C. N. Ellinwood, F. B. Kane.

Publication—W. A. Briggs, Chairman; G. L. Simmons, W. R. Cluness, G. G. Tyrrell, F. W. Hatch.

Arrangements—R. Beverly Cole, Chairman; Jas. Simpson, Washington Ayer, A. M. Wilder, R. H. Plummer.

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CATALOGUE OF OFFICERS AND MEMBERS

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MEDICAL SOCIETY OF THE STATE OF CALIFORNIA.

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1856.

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1857.

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1858.

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Laine, J. R.....Sacramento.
Lane, L. C.....San Francisco.
Lawlor, William M.....Oakland.
Legler, H. T.....Oakland.
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Martinache, N. J.....San Francisco.
†Matson, E. A.....Sonora.
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Pardee, E. H. ..... Oakland.
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Payne, F. H. ..... Berkeley.
Pelham, J. F. ..... San Francisco.
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Pike, H. G. ..... Hopland.
Pinkerton, T. H. ..... Oakland.
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Powell, D. ..... Marysville.
Powers, G. H. ..... San Francisco.
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Reynolds, G. P. ..... Alameda.
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Rucker, Hiram N. ..... Merced.
Rugg, S. P. ..... San Francisco.
Sargent, Jacob L. ..... Woodbridge.
Saxe, A. W. ..... Santa Clara.
Scott, John ..... San Francisco.
Shafter, J. C. ..... Olema.
Shuey, Sarah I. ..... Berkeley.
Shurtleff, Benjamin ..... Napa.
Shurtleff, G. A. ..... Stockton.
Simmons, G. L. ..... Sacramento.
Simonton, W. B. ..... Oakland.
Simpson, James ..... San Francisco.
Snider, T. A. ..... Sacramento.
Stansbury, Oscar ..... Chico.

Steele, Charles H.....San Francisco.
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Stout, A. B.....San Francisco.
Stuart, A. B.....Santa Rosa.
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Todd, F. W.....Stockton.
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Widney, Joseph P.....Los Angeles.
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David Kindleberger	United States Navy.
W. E. Taylor	United States Navy.
S. F. Shaw	United States Navy.
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R. Murray	United States Army.
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James Blake	San Francisco.
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JAN 8 1900

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OF THE

MEDICAL SOCIETY

OF THE

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DURING THE YEARS 1883 AND 1884.

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1884.

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DURING THE YEARS 1883 AND 1884.

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OF THE

MEDICAL SOCIETY

OF THE

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DURING THE YEARS 1883 AND 1884.

SACRAMENTO:
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1884.

M

REPORT OF COMMITTEE ON PUBLICATION.

In the mill of the gods the machinery of our Society has an illustrious prototype in at least one respect—it "grinds slow." By painful experience, the present committee, like most of its predecessors, has learned that delay, always vexatious and often seemingly inexcusable, is inseparable from the conduct of human affairs. The delay in the present instance being strictly unavoidable, and therefore beyond the reach of prophylaxis, we need not enter into its etiology.

In submitting the result of its labor to your indulgent criticism, your Committee respectfully calls attention to the following resolution adopted by the Society at its last session:

Resolved, That this Society, although formally accepting and publishing the reports of the various standing committees and the papers of voluntary contributors, holds itself wholly irresponsible for the opinions, theories and criticisms therein contained, except when otherwise decided by special resolution.

WALLACE A. BRIGGS, Chairman.
IRA E. OATMAN,
G. L. SIMMONS,
JAS. H. PARKINSON,
W. R. CLUNESS,
G. A. WHITE,
Committee on Publication.

SACRAMENTO, 1884.

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FOURTEENTH ANNUAL SESSION

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA.

The Medical Society of the State of California convened in Fourteenth Annual Session in Covenant Hall, San Francisco, and was called to order by the President, Dr. Ira E. Oatman, at 11 A. M., April 16th, 1884.

Dr. R. Beverly Cole, Chairman of Committee of Arrangements, delivered the following Address of Welcome:

MR. PRESIDENT, LADIES AND GENTLEMEN: As Chairman of the Committee of Arrangements, it becomes my gratifying duty to extend to you, one and all, an earnest, heartfelt, and cordial welcome, and to assure you that we are keenly appreciative of the great compliment so many years consecutively paid us in selecting San Francisco as your place of meeting.

We trust your present coming may more than reward you for sacrifices necessarily attendant upon absenting yourselves from home, business, family, and friends.

Such gatherings as the present of the representative men of the profession, cannot fail of being productive of great and good results—the discussion of scientific subjects, the interchange of individual sentiments, and the social fraternal feelings which are engendered, are liable to ripen into strong friendships and culminate in substantial progression of the great truths upon which the superstructure of the noblest of all the professions, medicine, is built and stands.

Let us then indulge in the hope that our deliberations be conducted in the most perfect harmony, with a due regard for individual feeling, and but one aim, to wit: the elevation and advancement of the science, and that discord, such as has crept into similar organizations on the Eastern slope of this continent, be kept without our pale, so that when the hour for separation shall arrive, each of us may return to his home with a consciousness that we have been profited, and, so far as was possible, have contributed our mite to the intellectual lore of the profession, as well as to the happiness of its members, in furtherance of this last desire *spectemur agendo.*

And now, in conclusion, permit me again, in the name of the profession and citizens of San Francisco, to say that we are delighted to receive you and enjoy the opportunity once more of extending to you the hospitalities of our city and homes, and bid you, with all our hearts, welcome, thrice welcome.

Before the regular business of the morning is entered upon, I have been requested to invite our visiting brethren to meet us around the festive board at a banquet to be given on Thursday evening, at the Baldwin Hotel, where the various wounds inflicted and received during the session will be treated on the most approved system of therapeutics.

Referred to Committee on Publication.

On motion, roll call was omitted.

The President read the Annual Address, which was referred to Committee on Publication.

Dr. David Powell was elected Assistant Secretary *pro tem.*

The following amendment to the Constitution, offered last year by Dr. G. G. Tyrrell, was passed:

After the words "five members," Article III, Section 1, is altered to read, "these officers shall be elected by the Society at large during the afternoon session of the second day of meeting. The election shall be by ballot. Except Permanent Secretary, each officer shall hold his appointment for one year, or until his successor is elected."

The resignation of Dr. H. W. Nelson was read and accepted.

The Board of Censors reported favorably on the credentials of Drs. Robert F. Rooney, W. H. Hammond, and J. A Anderson, and they were duly elected.

The Treasurer, Dr. F. W. Hatch, submitted his report, which was referred to the Finance Committee, consisting of Drs. Ayer, Orme, and Thorne.

Minutes read and approved.

Adjourned to 2 P. M.

AFTERNOON SESSION, APRIL 16TH, 1884.

Dr. F. W. Hatch, Chairman, read report of Committee on Public Hygiene and State Medicine.

Referred to Committee on Publication.

Dr. Henry Gibbons, Chairman, read report of Committee Practical Medicine.

Referred to Committee on Publication.

Report of Committee on Surgery was read by its Chairman, Dr. Robert A. McLean, and referred to Committee on Publication.

The Board of Censors reported favorably on the credentials of Drs. James Frost, John L. Dryer, H. W. Smith, and C. W. Evans, and they were duly elected.

The Committee on Finance reported the Treasurer's accounts correct.

Supplementary Report on Surgery, read by Dr. E. H. Woolsey, was referred to Committee on Publication.

Report of Board of Examiners, read by its Secretary, Dr. R. H. Plummer, and referred to Committee on Publication.

Report of Treasurer of Board of Examiners was received and referred to Auditing Committee, consisting of Drs. Nixon, Agard, and Chipman, who reported the accounts correct.

The Board of Censors reported favorably on the credentials of W. F. Southard and J. F. Morse, and they were duly elected.

On motion of Dr. R. Beverly Cole, the report of Committee on Medical Education was made the speciai order for this evening's session, at 7:30.

Dr. A. W. Saxe read a paper on Hawaiian Leprosy.

Referred to Committee on Publication, and vote of thanks tendered the author.

Invitation from Dr. John Scott to visit the California State Woman's Hospital was received and accepted, with thanks of the Society.

Minutes read and approved.

Adjourned to 7:30 P. M.

EVENING SESSION, APRIL 16TH, 1884.

Dr. W. F. McNutt, Chairman, read report of Committee on Medical Education.

Referred to Committee on Publication.

Dr. W. S. Thorne read supplementary report on same subject, which was likewise referred.

On motion, Dr. Wilder read paper entitled "The Old and the New Code."

A vote of thanks was tendered the author; the paper was referred to Committee on Publication, and five hundred copies were ordered printed for general distribution.

Dr. G. L. Simmons, Chairman, read report of Committee on Mental Diseases and Medical Jurisprudence.

Referred to Committee on Publication.

Dr. C. N. Ellinwood, Chairman of Committee on Prize Essays, reported that no essays had been submitted.

Minutes read and approved.

Adjourned.

MORNING SESSION, APRIL 17TH, 1884.

The President, Dr. Oatman, presiding.

Dr. S. G. Dearborn, of New Hampshire, was introduced and invited to a seat in the Society.

On motion of Dr. R. H. Plummer, the election of officers was made the special order immediately after convening in afternoon session.

Report of Committee on Publication read, and resolutions contained therein adopted.

Dr. O. O. Burgess, Chairman, read report of Committee on Gynecology.

Referred to Committee on Publication.

The report of Committee on Ophthalmology, read by its Chairman, D. W. E. Briggs, and referred to Committee on Publication.

Dr. A. M. Wilder followed with remarks on same subject, and the exhibition of pathological specimens.

The Board of Censors approved the credentials of Drs. E. V. Lonigo, A. A. Dupuy, W. J. G. Dawson and Isaac Rivers, and they were duly elected to membership.

Dr. J. G. Jewell, Chairman, read report of Committee on Medical Legislation.

Referred to Committee on Publication.

On motion of Dr. Washington Ayer, the Committee on Medical Legislation for the current year was instructed to secure, if possible, the enactment of a law providing for the care and treatment of dipsomaniacs.

The following resolution submitted by Dr. C. G. Kenyon, was adopted:

Resolved, That the Legislature be recommended to create the office of State Chemist, to be filled by the Professor of Chemistry of the University, who shall act in conjunction with the State Board of Health, and whose duty it shall be to analyze food, drugs, remedies, waters, etc., and report upon same, for the general good of the people and to the discomfiture of parties dealing in adulterated and spurious articles of food and medicine.

On motion of Dr. A. W. Saxe, the following resolutions were adopted:

Whereas, Dr. G. A. Shurtleff, a member of the California

State Medical Society, since its organization, and at one time its presiding officer, and who seldom failed from year to year to give invaluable support to this Society by his presence and counsels, at its annual meetings, and by frequent contributions of his rich experience as an alienist,

And whereas, This Society is informed of the many afflictions through which he has been called to pass during the last few years; added to which his present suffering by painful and threatening disease:

Therefore, *Resolved*, That the sympathies of this Society in all its members throughout the State, is hereby tendered to Dr. Shurtleff, with most earnest hope that he may be restored to health and usefulness; that these resolutions be entered upon the minutes, and that the Secretary be requested to forward to Dr. Shurtleff an engrossed copy, with respects of this Society.

Dr. W. F. McNutt's paper was ordered published, with Dr. A. M. Wilder's, in pamphlet form.

Report of Committee on Diseases of Women and Children was read by its Chairman, Dr. L. M. F. Wanzer, and was referred to the Committee on Publication.

Dr. R. Beverly Cole presented a paper on Hygiene, by Dr. Hopkins.

Referred to Committee on Publication.

Minutes read and approved.

Adjourned.

AFTERNOON SESSION, APRIL 17TH, 1884.

The Board of Censors reported the following gentlemen as eligible to membership: Drs. S. S. Simmons, W. E. Bates, W. Lundbourg and L. C. Crossman.

They were duly elected.

The election of officers being now in order, Drs. Simpson, Pond and Rucker were appointed as tellers.

On motion of Dr. R. H. Plummer, nominations were ordered made from the body of the Society.

The following officers were duly elected for the ensuing year:

President - Dr. R. Beverly Cole.

First Vice President- -Dr. W. S. Thorne.

Second Vice President - Dr. Wm. P. Gibbons.

Third Vice President Dr. A. H. Agard.

First Assistant Secretary Dr. David Powell.

Second Assistant Secretary —Dr. L. M. F. Wanzer.

Treasurer— -Dr. F. W. Hatch.

Board of Censors Drs. G. W. Davis, T. B. DeWitt, A. G. Anthony, H. S. Orme, G. G. Tyrrell.

Board of Examiners -Drs. W. F. McNutt, C. H. Steele, C. E. Blake, C. G. Kenyon, R. H. Plummer, A. H. Pratt.

Alternates of Board of Examiners -Drs. J. G. Jewell, J. W. Blake, P. Wheeler.

San Francisco was selected as the place of next annual meeting.

A memorial of Dr. J. Marion Sims was presented by Dr. R. Beverly Cole and ordered on file.

The resignation of Dr. H. G. Pike was read and accepted.

Dr. W. P. Gibbons, Chairman, read report of Committee on Indigenous Botany.

Referred to Committee on Publication, with thanks of the Society.

Drs. Wagner and Gibbons proposed an amendment to Article II, Section 1 of the Constitution, inserting after the word "ballot" the words "without nominations."

The following resolutions, presented by Dr. H. S. Orme, were adopted:

Resolved, That the Committee on Medical Legislation is hereby instructed to prepare and to submit to the next Legislature, a bill providing for a full analysis of medicinal plants and mineral waters of California, and that said Committee apply to the same body for an annual appropriation of $4,000 for two years, subject to the disposal of this Society for the purpose indicated.

Dr. A. H. Agard read a paper entitled "Some of the Uses of Ergot as a Vaso-motor Stimulant."

Referred to Committee on Publication.

Dr. H. S. Orme proposed for honorary membership, Drs. Jno. M. Browne, U. S. N. and Jno. S. Billings, U. S. A.

They were duly elected and the Secretary instructed to notify them of the action of the Society.

Dr. A. B. Stewart read a paper on Fracture of the Lower Jaw.

Referred to Committee on Publication.

Dr. Albert Chase read a paper on the Natural Method of Resuscitation.

Referred to Committee on Publication.

The following resolution introduced by Dr. H. S. Orme, was adopted:

Whereas, Owing to the carelessness or indifference of the medical profession generally, the law of the State relative to irregular practitioners, has, to a certain extent, proved inoperative,

Therefore, *Resolved*, That all regular physicians be requested to interest themselves in the suppression of the evils arising from quackery and ignorance, by promptly securing the arrest of all irregular practitioners, and thus causing the law of the State to be enforced.

Resolved, That in counties where no regular county society exists, the regular physicians of such counties be requested to immediately notify the Board of Examiners of the Medical Society of the State of any infraction of the law in their respective counties, so that the profession and this Society may be able to ascertain the number of those practicing without a license in violation of the law.

Dr. R. Beverly Cole presented a paper by Dr. J. A. Anderson, on a New Theory of Fœtal Nutrition.

Read by title and referred to Committee on Publication.

Minutes read and approved.

Adjourned.

EVENING SESSION, APRIL 17TH, 1884.

Dr. Crumpton read a voluntary paper entitled the Experiences of a Country Doctor.

Referred with thanks of the Society.

Drs. H. S. Orme, R. Beverly Cole, F. W. Hatch and A. B. Nixon were elected delegates to the American Medical Association.

On motion all papers presented to the Society were ordered to be sent at once to the Committee on Publication.

Dues of Assistant Secretaries were remitted by vote of the Society.

On motion of Dr. Washington Ayer, Drs. W. A. Grover and

Jas. Simpson were appointed to assist Commitee on Necrology in preparing an obituaries of Dr. B. D. Dean and Wm. Lewitt.

The following resolution was introduced by Dr. A. M. Wilder, and adopted:

Resolved, That in accordance with the recommendation of the Chairman of the Committee on Education, and the extension by the Medical Department of the University of California and the Cooper Medical College, of an invitation to this Society for the appointment of a Committee to be present at the final examinations of said medical schools, that such invitation be accepted, and that such a committee be appointed.

Drs. H. Gibbons and H. S. Orme were appointed to conduct to the chair the President elect, who made a brief address.

A vote of thanks was tendered the retiring officers.

On motion of R. H. Plummer, the incoming Committee of Arrangements were instructed to provide for a session of three days.

Minutes read and approved.

Adjourned.

WALLACE A. BRIGGS,
Permanent Secretary.

ANNUAL ADDRESS.

Before the Medical Society of the State of California.

BY IRA E. OATMAN, M. D., PRESIDENT.

LADIES AND GENTLEMEN OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: According to our Constitution, it is the duty of the presiding officer at each Annual Session to deliver an address "on some subject connected with medicine, or the interests of the Society." With a deep sense of the responsibility, and with my most profound gratitude for the honor and distinction conferred in electing me your President, I propose to treat chiefly of the latter clause, viz: "the interests of the Society," and also of the profession at large, keeping constantly in view the more important interests of the entire community. As votaries of the sciences involved in the healing art, enlightened medical men not only keep pace with the progress of the age, but also stand in the front ranks of scientific discovery, on grounds consecrated by their professional brethren of the past, who have held most conspicuous positions in the world of science ever since medicine became a distinct calling. The earnest, devoted and philosophic physician is not satisfied with the routine literature of his profession. How much soever he may be indebted thereto for his professional knowledge, wisdom and

power, the facts thus obtained are but so many elements in his hands, to be classified, generalized and specially applied to each individual case he is called upon to treat, according to its own antecedents and its existing conditions. His educational studies and training, including his entire professional course, observations and experience, develop the powers of the mind and enable him philosophically and logically to utilize his attainments at discretion, and to exercise, in the management of his cases, that skill which secures his best success. The highest attainments possible to the medical man involve an elementary knowledge of physics, organic and inorganic, as well as metaphysics, including the moral powers of mankind in relation to each other, and to the universal Deity. The more skillfully and appropriately we utilize all this knowledge, the more successful we will be and the better will be our own approval of our own actions. In physical treatment we are governed by physical, chemical, physiological and pathological laws. In moral treatment, often soothing, salutary and therapeutic, we are governed by metaphysical laws or principles, often challenging our profoundest skill. We may assume that science is the connecting medium between God, the universal Deity, and man, and that the higher we ascend among its beautiful pillars in this salubrious medium, the nearer we approach to God, scientifically.

The generally accepted theologies of enlightened nations teach that there is one God—an universal Deity—creator of all things; and who maintains all laws by which all things, physical and moral, exist and are influenced. Whilst others believe—and their numbers seem to increase—that time, space and substance are immortal; that mentality is only developed through the organism; and that for the mind or soul to become immortal, it must be the "*gift* of God,"—"who *only* hath immortality." The medical man devotes his life

to the study of nature, and in the pursuit of a scientific knowledge of her laws. If he sees in nature no evidences of the immortal state, he is liable to drift into materialism, and may see nothing higher than science and the immutability of its laws. Let him study the Bible. Hence, it seems to be a law of the human mind that "as a man thinks, so is he,"—to a great extent. Without adopting any religious belief adverse to our own, with a knowledge of the human mind, its hopes and its fears, and its sympathies, we can often, through moral influence, quiet nervous irritability, ease pain, soothe mental perturbations, to a degree not only salutary and acceptable, but positively therapeutic in its effects. This we can do without mental reservation, or attrition of conscience, in many cases of mental aberration, of threatened dissolution, and in other cases, even to the saving of life; whilst such influence, judiciously employed, often sustains, encourages and mollifies surrounding relatives and dear friends, or the attendants, thereby securing their earnest and cheerful cooperation in the use of all other means employed for the relief and cure of the patient. These moral influences are potent adjuncts in our hands, and may, in the most critical cases, be sufficient to turn the scale and secure success, where the physical treatment employed alone would fail. We should be thorough metaphysicians. The professions of Law and Divinity do not necessarily require so extensive a knowledge of the elementary scientific principles in nature as does the medical profession; nor does any other popular vocation in the ordinary pursuits in life. Hence, we perceive, that the medical profession not only makes the chief progress in scientific discovery, but that they will, of necessity, continue so to do in the coming ages, until the hidden resources of nature shall be so utilized, through the agencies of gravitation, caloric, and electricity, and in histo-

logical investigation, and in therapeutics, as to astonish each successive generation as we have been astonished and delighted, through the same agencies, until the condition of mankind will approach the ideal heaven of the present age. To make this address as practical as possible, I wish to allude briefly to subjects of special interest to the profession at this time. A discussion of the several papers presented—an interchange of views thereon—would place before the Society the combined knowledge and wisdom of its members, to some extent, and could not fail to be one of the most pleasing and yet profitable of its exercises.

At the last session it was "Resolved, that hereafter the annual sessions of this Society continue three days, if necessary." At the same session, "the Committee on Legislation was instructed to prepare a medical law, in accordance with the suggestions of the Committee on Medical Legislation of the current (last) year." I have not seen their bill. The subject is in the hands of an able committee, and I anticipate an acceptable bill. I sincerely hope that the bill will be approved by the Society, if satisfactory; if not, that it will be so amended as to secure the undivided support of all the members, and their combined influence, before the next regular session of the Legislature, both in selecting the members thereof, and during the session. In addition to the law contemplated above, to "*regulate the practice of medicine*," I would renew the oft-repeated and earnest recommendation for a separate law, to adequately compensate medical experts in all cases. Another, for an asylum at one of the State prisons for insane criminals; also, proper legislation in regard to quarantine, as recommended by and under the direction of the State Board of Health, notwithstanding the formidable objections urged against it of late years by able scientists; also, a law providing for the establishment

of medical libraries in the principal cities and towns of this State. I will not detain you to urge the claims of the above measures. They are numerous, strong and urgent.

The same necessities exist in regard to color blindness of the track, switch, station and train-men in the employment of railroad companies; also on steamboats and sailing vessels. *State Medicine* has acquired an importance exceeding our expectations. The National Board of Health and the State Boards in most of the States are accomplishing great good, whilst the boards of cities and towns are exerting an influence upon the sanitary interests of their respective places, without which the inhabitants thereof would be at a loss to know how to accomplish the same ends. Should the cholera or yellow fever threaten to invade our fair State, the influence of our Boards of Health would be to say the least, appreciated. The course of epidemic cholera has always been from East to West. At the time of its last invasion in this country, the insanitary conditions favoring its progress were sufficiently understood for the whole country to be fortified against it. Its force and progress were broken and dissipated in our great Continent so that it did not reach our favored State. Since that time the progress in sanitary science and in the prophylaxis of epidemics has been so rapid and great that it is reasonable to suppose that its progress would be arrested, its malignity modified and its epidemic influence dissipated long before it could reach the Pacific States. The expanse of the Pacific Ocean is so great, that, should the disease for the first time, travel Eastwardly, its epidemic influence at least would be apt to be lost long before it could reach our shores. The disease, according to my experience in treating it at three different times, is contagious, although contagious diseases require an epidemic influence to become extensively epidemic. Our position is

so isolated, with the great plains and deserts and mountains on the one side, and earth's broadest expanse of water on the other, as to protect us, probably, from epidemic cholera, especially with proper sanitary precautions and quarantine. The near approach of yellow fever the past year to the centers of population in California, calls for every possible effort being made by all the means known to sanitary science, to prevent its introduction and prevalence amongst us. The insanitary conditions existing where the disease has been the most malignant, are so well known that nothing but unpardonable neglect can prevent their removal and abatement in our cities and towns where it is most apt to prevail. The topography of California gives us climatic conditions which would seem to forbid epidemic yellow fever; conditions in which the epidemic influence may not exist. Along the entire sea coast during the warm season, the weather is seldom hot more than two or three days at one time, whilst the coldness of the sea breezes, and especially of the ocean winds, keeps the temperature below that which usually prevails during epidemics of that disease. In the interior we always have cool nights, with dryness and salubrity of the atmosphere, probably incompatible with its prevalence as an epidemic. The dryness, coolness and salubrity of the mountain air, with coldness and frosts at night in the higher altitudes, will not only protect those localities, but they will be accessible and safe retreats for refuge in the possible event of an endemic of yellow fever anywhere in California. With yellow fever I have had no experience. I once saw and treated sixteen cases of cholera in Illinois; a very limited endemic forty miles from Chicago, in a new and thinly settled neighborhood in the country, five miles from any village. There could have been no local cause for the disease. A man and a woman of irregular habits, having stayed a few days in Chi-

cago, where cholera was prevailing, not extensively, returned to the above named locality in the country, and were soon attacked with the disease in a highly malignant form, and both died. All the other cases—fourteen in number—were either exposed to the first two, or to each other, after they were attacked, and some of them had the disease in a malignant form. Of the whole number attacked, I believe five died. Soon afterwards I had the disease myself. Although this forcible example, and numerous others on record, show the disease to be contagious, yet it is well established that the most malignant epidemics of both cholera and yellow fever, have chiefly been in towns and cities where the scientific application of sanitary precautions had been neglected; where organic substance had accumulated in all stages of decomposition—under circumstances and conditions best calculated to generate and eliminate pestiferous gases in great quantities. The insanitary conditions of the breath of life thus produced, lower the vital powers, impair the general health, and establish a susceptibility to the so-called zymotic diseases—diseases of low, and often malignant type.

If cholera or typhoid fever, or erysipelas, or cerebro-spinal meningitis prevail, the more sucseptible are attacked, and may fall victims to the disease. The same is true of yellow fever, if the usual accompanying conditions of protracted heat and a humid atmosphere obtain at the same time. The pathogenetic influence of these gases, combined with specific contagion, seems to determine the nature or kind of the epidemic—whether it be cholera, yellow fever, typhoid fever, scarlatina or small pox—the malignancy of the epidemic depending upon the noxiousness of the air, and probably an epidemic influence in the atmosphere, at present indefinable. The prevention of diseases may be more potent in prolonging life, than their cure.

In considering the etiology and the prophylaxis of the above named diseases and others, the so-called *germ theory* has assumed importance which cannot be ignored. Many of the most eminent scientists, in their histological investigations, believe in and have taught the theory, and have apparently demonstrated its verification. Others, of eminence also, explain the phenomena by which the theory is claimed to be demonstrated, by showing that bacteria, bacilli, and the various micrococci, do not sustain a *causative* relation to the diseases in which they are found, but are sequent thereto—that were the diseases caused by micro-organisms, all persons exposed to them would have the same disease each variety would produce—and that the specific variety causing each disease would be easily detected by the patho-histologist, and its germicide discovered: also, that the pathological condition of the organ affected, or of the whole system in which they are found, is first produced by other causes, creating for them a genial habitation, and ample pabulum for their wondrous proliferation. Dependent upon others for histological investigation of this subject, my convictions favor the latter view, viz: against the germ theory of causation in almost all diseases; the so-called demonstrations thereof admitting of other explanations.

That the exhalations from large quantities of organic matter in an advanced stage of decomposition are noxious, and aid in the production of diseases, or produce them directly, seems to be well established by close observation, if not by scientific demonstration. If organic germs do not form the noxious element, the alternative obtains; that combinations of gases, formed in their nascent state, exert a depressing and poisonous influence upon the vital organs—probably through the agency of the circulation, and of the brain and nervous system. The general morbid condition thus pro-

duced predisposes to the attack of such disease, or diseases, as the prevailing combinations of gases, in their intensity, produce. Exciting causes develop the threatened disease; or, if the predisposing cause be sufficiently intense, it also excites the attack. If an indefinable epidemic influence prevail, an endemic, or an epidemic, will be established, according to the extent and virulence of that influence. The epidemic may be diphtheria, erysipelas, cerebro-spinal meningitis, or malarial fever; or it may be one of cholera, yellow fever, or some of the contagious exanthemata. I could devoutly hope, however, that the germ theory in the causation of many diseases may be established, if it would simplify the treatment and make it more successful. Forcible evidence has been adduced against the noxiousness of sewer gases—especially in producing the so called zymotic diseases—alleging in support thereof that diphtheria, cerebro-spinal meningitis, typhoid fever and cholera have prevailed where no such gases existed—in remote rural localities—sometimes deep snow covering the ground all the time.

Whether the germ or the gaseous theory is true, or if they are both true, to a certain extent, the practical deductions from the entire investigation of the subject to this date, confirm the established usage and vital importance of sewering our towns and cities—looking to a degree of perfection therein not hitherto obtained. An important improvement demanded is, to *dispose of the noxious gases* through high stand pipes, or other scientific means, instead of allowing them to escape from sewers at the inlets, at every crossing street. The imperfection of traps, the diffusible nature of noxious gases, the permeability of walls and other substances to their penetration, are fruitful subjects for the sanitary engineer. All kinds of garbage should be carted away during the night, and before fermentation and decomposition com-

mence. Cellars, back yards, cess-pools, closets, and all plumbing, should be under strict surveillance, and kept in a condition above suspicion. Neglect of these precautions has resulted in highly fatal endemics.

The success obtained of late years, in diminishing the mortality in towns and cities, from so-called zymotic diseases, by increased sanitary precautions, has been such as to justify the hope that, if they cannot be stamped out, they may be shorn of their terrors; and that the time is not distant, when the devastation therefrom will no longer be a horrible dread, in our centers of population.

As contemplated in our Constitution, the chairmen and members of the several committees, will doubtless, as in the past, report all discoveries and improvements in their respective departments or sections during the past year in California. The mortuary report may be of unusual and profound interest. The Constitution should be so amended as to include medical progress as far as ascertained in all other parts of the world. I beg to recommend that the annual reports as well as the voluntary contributions, in future, be as brief and as concise as the merits of the subjects treated will admit--with *special* reference to the *progress* in the medical sciences, or in *confirmation* or *rejection*, of existing theories or practices--whether old or new. It would improve the literature of the Society, and make it more intensely interesting.

In regard to the ethics of the profession, I wish to have placed on record that I am opposed to any important change in the established Code of the American Medical Association. The change adopted by the New York State Medical Society, is a compromise between science and fiction. It lowers the standard of regular scientific medicine, and elevates the irregular and unscientific, to meet on common

ground—ground on which we never can affiliate or harmonize, in the interests of science, and of suffering humanity. The immutable principles of science know no compromise with ignorance or cupidity, how much so ever they may be reinforced by numbers and influence. The exalted and well earned eminence of regular scientific medicine rests upon a solid foundation, as of adamant, which cannot be moved. Regular medicine can no more affiliate and consult with irregular, than the religionists of the Bible can consult in the interests of their churches, with Mohammedans or idolatrous, pagan priests. Irregular and unscientific practice will have its votaries and patrons. As correct knowledge increases and the inefficiency of the unscientific becomes more generally known, it will be self regulating—the chief inspiration of its votaries being sordid cupidity. Scientific progress and reform may move slowly, but "truth is mighty, and will prevail." The public mind is sufficiently observant and logical, if *scientific facts* involved could be demonstrated before them. Suppose a man, nearly exhausted, floating in a swift and turbulent stream near to a skillful oarsman with his boat and rope—who could easily save his life in a short time. Eager observers urge him to save the drowning man. Go with your boat! throw him the rope! etc. Another man says this is better, and throws a cork, fastened to a frail thread to the man in danger, who grasps it as he would a straw, but it has no strength—it parts at once—the man is out of reach —he sinks for the third time and is lost! So it is with much of the irregular practice. It is also true in regard to patent and proprietary medicines. The irregular, or the patent medicine, is depended upon—the patient dies—not killed by either, but allowed to die for the want of that which would certainly have saved his life. Is this fatal deception better than murder? How many such fatal cases

come to our knowledge in a single year! It is, so to speak, an insanitary state of the public mind more fatal to human life, in my belief, than all the sewer gases and micro-organisms in the civilized world.

The most formidable obstacle to the relief of this delusion, is in the fact that, whilst scientific medical men are the only ones who can be depended upon to enlighten the public mind on the subject, their teachings and influence are ignored; their opponents alleging that they are *interested*, not seeming to realize that the irregular and the patent medicine vender are *more deeply interested*, since money, the god whom they worship, is all in all to them.

The progress made by medicine since it was in the hands of the priesthood, especially during the last half century, gives promise that in the near future the advancement will be still more rapid; also, that, thorough professional attainments will be required of all medical practitioners; and that all mongers of patent medicines will be required to accompany each package with the precise elements of the thing sold and in their relative proportions. These desiderata once obtained, lives would be saved by the hundred thousand annually, and millions upon millions in cash saved annually to the unwary public. No false theories or delusions can permanently obstruct the progress of pure science. Its firmament may be darkened by mists and clouds, but the golden rays of its light will penetrate and dissipate all obscurities, and its eternal sun will continue to illuminate the world with its effulgence, and shine on and on forever.

REPORT ON PRACTICAL MEDICINE.

BY H. GIBBONS, SR., M. D., CHAIRMAN.

There has been no marked epidemic in California during the past year. The nearest approach to it was the general prevalence of pneumonia and bronchitis in the Spring and Winter months. These two forms of disease are diffused very equably on the Pacific Coast. Whilst pneumonia is attended with much fatality, bronchitis, as every one knows, is seldom fatal directly, though in many instances it exhibits great tenacity and frequent recurrence; so that many persons attacked in the early Winter find it difficult to get well till the season changes.

After the American occupation there was for several years a bronchial outbreak on this Coast every Summer, principally in June, amounting almost to an influenza. It recurred punctually for several years and then disappeared as an epidemic.

The form assumed by pneumonia is mostly sub-acute. The invasion is seldom primary and idiopathic, but nearly always secondary to a general condition tending to loss of resisting vital force. This accounts for its fatality.

Phthisis maintains its reputation as the great destroyer, claiming its quota of one-tenth to one-fifth of the whole mortality. Local mortuary statistics, however, are of little value in determining the climates and localities favorable or unfavorable to its development. Many of its victims fly from

the hostile climates which have kindled the disease, to swell the record of its mortality in the best sanitary regions; making the worst appear the best, and the best the worst. The question of climate for consumptives is commonly investigated with the idea of finding some particular climate suitable for all cases. But this is an impossibility. As well might one attempt to make a coat or a hat to fit every individual. In the extraordinary diversity of climates in California as regards Summer temperature, the best possible opportunity is afforded to invalids to find localities adapted to individual cases. No other part of the globe furnishes a Winter climate so nearly alike for so many degrees of latitude, and few climates exhibit in so close proximity the coldness of the Summer on the sea-coast during the day, and the high temperature of the interior at the same moment of time.

Much of the benefit to invalids usually ascribed to certain climates and localities depends more on the change of place than on the absolute superiority of one locality over another. We frequently observe two invalids exchanging climates with advantage to both, though one of the localities be acknowledged as far inferior on the score of healthfulness. For many years it has been my practice to recommend to migratory patients in search of health resorts, to move frequently from one place to another, as soon as they cease improving in the new locality.

Some of our California climates are best for Winter, and others for Summer. That of San Francisco is less unfriendly to pulmonary patients than is generally supposed. In Winter it differs but little from other localities, except in the extreme South. Even in Summer the tonic influence of the ocean winds compensates, in some degree, for their damp and chilly character.

After the countless pages that have been published in favor of different health resorts in various quarters of the globe, I doubt if there is any area of territory of the same extent as California, presenting so many excellent sanitary resorts, and commanding all the comforts and luxuries of home life. Our territory is increasingly dotted over with cities and towns, its fields and plains improved and planted, and access from place to place is becoming more and more easy from year to year. Our mineral springs are profusely distributed, and wonderfully diversified in character. It is not an extravagant expectation that before many years California will be the grand sanitarium for a great portion of the civilized world.

The question of the communicability of phthisis has gained advocates within a few years. That the disease is contagious is no new belief. A wife who has nursed her consumptive husband, or an individual who has slept habitually with a tuberculous person falls a victim to the disease, and though ninety-nine in a hundred so exposed escape such ill consequences. a few pathologists have at times seized upon the exceptional cases as proofs of contagion. It is not surprising that a wife or a mother who has exhausted her strength by a long siege of nursing, whose body and mind have been on the rack for months and who may possess the required diathesis — it is not surprising that such a person should succumb to tubercular disease, nor is it surprising that our profession should develop its proportion of *post hoc* reasoners on this and other subjects.

Then came that revolutionary agent, the microscope, with which Koch discovered a peculiar form of bacillus in the sputa of phthisis, the bacillus tuberculosis. Immediately the discovery and the name made thousands of converts to the doctrine of contagion, though Koch himself refrained from

asserting such a positive inference. The production of tubercle in certain inferior animals by inoculating them with the tubercular sputa appeared to confirm the doctrine, but then the curious discovery was made that the same result often followed inoculation with substances having no relation to the tubercle.

Whatever may be said of the contagiousness of phthisis, there can be no doubt of the contagiousness of opinion. A large majority of converts to any new doctrine or hypothesis have caught their belief, so to speak, from other individuals, whose prominence in the world of science renders it creditable to take rank among their followers. Fashion has nearly as much to do with the opinions of men on scientific subjects as with the forms of women's garments. The microscope is now running a triumphant career, and has brought to the front in medical etiology the hitherto unknown world of micro-organisms to such an extent that these organisms have become the very incarnation of contagion. One after another, special forms of disease have been assigned to microscopic germs, until every disease seems likely to have its special bacillus or bacterium, capable of transporting its peculiar morbid action from one body to another.

I am acquainted with a medical gentleman of high professional attainments who attributes an attack of pneumonia which he lately suffered to contagion from a patient whom he attended with pneumoniu. In the course of forty years of practice, this gentleman had probably attended a thousand cases of pneumonia, with no such sequence in a single case. To what can we ascribe his belief of contagion in the one instance if not to a credulity begotten of the doctrine of organisms? The same may be said of the belief in the communicability of phthisis--a belief which is largely the offspring of the bacillus tuberculosis. In entertaining this

opinion do we not discard experience for theory? I have had twenty years of hospital practice, with patients in all stages of pulmonary consumption, distributed promiscuously in the wards with other patients, and neither in my hospital experience nor that of fifty-five years of private practice, have I met with one solitary instance in which suspicion of contagion was entertained. As far as experience is concerned, there is quite as much argument in support of the contagiousness of rheumatism, neuralgia, gout, nephritis, and many other diseases as of phthisis. Let the microscopist discover a bacillus rheumaticus, or a bacillus podagræ, etc., and believers in the contagiousness of those diseases will immediately spring up.

If the bacillus be the cause of phthisis, the treatment deducible from the hypothesis consists in the use of some agent which will destroy the organism. Hence inhalations of various kinds have been employed, such as carbolic acid, ammonia, spray of corrosive sublimate, etc. Thus far no good results have been reported. It is quite probable that more harm than good has followed this course by inducing the rejection of means sanctioned by experience and condemned as empirical, and substituting others based on theory alone. Such is "physiological medicine"—the boast of modern times. I do not hesitate to condemn any therapeutic method which depreciates experience by stigmatizing it as empiricism and which is guided by theory alone.

Not long since I had occasion to purchase eye glasses. A skilled and scientific optician took the measure of my vision and selected glasses accordingly. On trial I found them inferior to the old pair. Again he applied his optical instruments and assured me that he was right and that his selection was the proper one. But still I could not see well with the new glasses. He insisted that I was wrong and

that those of his selection were precisely adapted to my vision, and I was under the necessity of trying one pair after another until I found what I wanted. In other words, I discarded science or what professed to be such, and fell back on experiment or empiricism. I mention this incident to illustrate the relation of exclusive physiological therapeutics to experimental methods. United, the two are friends to the sick, and separated they are, or may be his enemies.

The safest and best practitioner is he who stores up all the fruits of experience and keeps at his fingers' ends all the resources of the past; who inquires diligently into all new theories and new remedies, but holds them in abeyance until his array of experience is exhausted, exposing his patient to no risk from untried or unestablished means, but rather awaiting the results of their trial by others, well knowing that such trials will be made abundantly, even to the extent of hazard and rashness. He should never forget that his first duty is to his patient, and that the promotion of science is secondary and not to be sought at the risk of those with whose health and life he is charged.

Since the legalization and multiplication of specialties in practice, general medicine has lost by specialists more than it has gained. The concentration of mind in one direction cannot fail to warp the judgment in other directions. When the chemist takes up therapeutics independently of clinical experience, he can scarcely avoid giving undue weight to chemical laws. The history of medicine is full of illustrations of this error. Microscopy, when pursued apart from personal inspection of disease, in other words, when cultivated as a specialty by scientists not familiar with disease and not trained in medical practice, is liable to beget false theories and to lead into error. In years long past microscopists asserted the discovery of the specific germs of cholera, of

malarial affections and other maladies. Latterly, other organisms have taken the place of the former and captured the professional mind. Phthisis, pneumonia, cholera, yellow fever, malaria, typhoid and typhus and relapsing fever, each claims a parentage in the micro-organic world, and we appear to be verging towards a general belief that microscopic germs are universally the seeds of disease and death.

It is probable that the reign of the germ theory, or at least its range, has culminated or is near its culmination. In the revolving cycles of medical science some other cause will before many years invite the footsteps of inquiry, and fashion will popularize some other theory.

The discovery of the bacillus in tubercular sputa has not led to any improvement in treatment. Every passing year confirms the preventive, hygienic and sustaining method. Change of dwelling place, perhaps repeated again and again, equitation, an out-door life, climates selected to fit each person as you would a garment, good nutrition—these are the elements of most promise in protecting from consumption and arresting its early stages.

It appears to be established as a fact that the Irish people in America are more prone to pulmonary consumption than any other race. The drier climate of our country, the change from a diet mainly vegetable to a more nutritious diet largely composed of animal food, the better clothing and the vastly superior comforts of their new home, ought to have the opposite effect. And if whisky have any prophylactic virtue in this disease, their immunity should be further increased. In other nationalities, men are the principal drinkers. But in our Celtic population the two sexes enjoy equal privileges in this respect. How far does the common use of alcohol by females of that nationality favor the development of tubercle in their offspring? Possibly the improvements

in modes of living just described is an agent of mischief. It is a well known fact that the change from a rugged outdoor life with its discomforts and hardships, to the ease and luxury of a good home, is often followed by some illness.

Typhoid, or more properly enteric fever, continues its sporadic visitations from year to year, occasionally infecting a dwelling or a locality so as to give the appearance of contagion. In the Atlantic States and in Europe, physicians are generally united in regarding it as contagious. But during the thirty-four years of my California experience, including both hospital and private practice, I have never seen the slightest evidence of its communication from one person to another. In St. Mary's and in the City Hospital, typhoid patients have always been placed in the common wards with others, and I have never known a single instance of the disease attacking another patient or a nurse. Such is the almost universal testimony of those practitioners throughout the State whose opinions I have ascertained.

Among the alleged causes of enteric fever, sewer gas is the favorite, but the disease appears very often in rural localities and in hilly places where there are no sewers; where drainage is complete and where all the topographical elements of health would appear to be concentrated. Even in our cities, the propinquity of foul sewers which give rise to most offensive emanations is no more liable to its visitation than other parts of the city where the atmosphere is apparently pure.

I cannot say that any progress has been made during the year in the management of enteric fever. The cold bath cure which was in vogue a few years ago, though still employed by some European practitioners, has not grown in favor, nor has the anti-pyretic quinine treatment which once promised so much, maintained its ground. To support the

strength by nourishment, reserving alcohols for the exhaustion of the advanced stages, and to guard against local determinations are the two leading indications. A few large doses of quinine in the early stage as an anti-periodic, especially if a malarial taint exists, may be of advantage.

A few districts of the State are subject to intermittent and other malarial fevers. The southern portion of the great San Joaquin Valley and the northern of the Sacramento Valley are the principal malarial districts. Quinine in anti-periodic doses, is the universal resort in intermittent fever, and the paroxysms being thus arrested, the patient is dismissed as cured, only to encounter a return of his chill in a week or a fortnight. The same course is repeated with the same unsatisfactory result, until finally the subject of this patchwork turns his back on the faculty, as well he may, denounces the inefficiency of regular treatment, and resorts to some nostrum the basis of which is quinine, and is cured by its prolonged use.

In the treatment of intermittent, the two-fold indication should always be kept in view, first, to arrest the paroxysms, second, to prevent their return. I need not describe the details of this treatment, but it is a matter of importance to avoid the mischief that may arise from a frequent and lavish use of quinine. Though its immediate effect in arresting the paroxysms is beneficial, its prolonged use stamps the malarial condition more deeply on the organism. This effect is well illustrated by patients from malarial districts who enter the city hospital. Their sallow and almost jaundiced complexion and their dejected look tells the story at a glance.

The ancient practice was much more efficient in these cases than the modern. Before the introduction of quinine and for some time after, the old doctors began the treatment with an active mercurial cathartic, to which an emetic was sometimes

conjoined. This rendered the system much more susceptible to the influence of the anti-periodic. Perhaps a blue pill nightly for a short time was conjoined with the quinine. By this means the liver and spleen were disengaged and the blood cleansed of malarial pigment.

Nothing in the history of medicinal agents is more extraordinary than the wide range which quinine has secured in the treatment and prevention of disease. Scarcely a malady in the nomenclature but draws upon it. Quinine has become almost a universal remedy. Beyond a doubt it is too often prescribed empirically and from habit. It is capable of doing mischief in febrile and inflammatory affections, especially in children. I have seen cases of supposed meningitis in children, in which all the brain symptoms vanished within twenty-four hours after its withdrawal.

Several years ago I published the result of the iodine treatment of intermittent fever in patients under my charge in the San Francisco City Hospital. These patients came mostly from the malarial districts already mentioned, and were saturated, so to speak, with malarial poison, and mostly with quinine also. After a mercurial purge, they were given ten drops comp. tinc. of iodine three times a day, increased sometimes to twelve or fifteen drops. The result was uniformly gratifying. In some instances the arrest of the paroxysms was as prompt as possible from quinine. Seldom was there more than one paroxysm after the initiation of the treatment, which was continued several weeks, no recurrence of the disease taking place.

Similar testimony in favor of the iodine treatment has appeared from various sources. But a different experience was narrated in the *American Journal of the Medical Sciences*, for July, 1883, by Prof. Atkinson, of Baltimore, who had initiated the iodine treatment in the Bay View Asylum,

in his charge. His observations were so carefully made and so precisely reported as to entitle them to full credit, though it is difficult to reconcile the result with the experience of others. Possibly the great change which my patients enjoyed in escaping from a malarial region where they had no good nursing and no hygienic means, and entering a comfortable hospital, where they were surrounded with circumstances favorable to health, affords some explanation of the problem.

In a few instances, perhaps in four or five per cent., the toxic action of iodine appeared, in the form of gastric and intestinal irritation, loss of appetite and general deterioration of health. These conditions soon vanished after a suspension of the medicine.

The frequent high price of quinine, and immense quantity consumed, involve such a vast annual expenditure as to render a substitute desirable. Other active principles than quinia contained in cinchona have been resorted to. The sulphates of cinchonidia, cinchonia and quinidia are employed by many practitioners, who find them efficacious as anti-periodics when given in larger doses. Other preparations combining all the active principles of cinchonia, under the names of cincho-quinine, dextro-quinine, quinquinia, etc., have been found useful. But sulphate of quinia, after all, must be regarded as the chiefest of anti-periodics. The other preparations, however, hold an important place as tonics, and I believe, are much better for prolonged and daily use than the sulphate, three or four grains daily being administered for this purpose.*

Attempts have been made to produce quinia from its chemical constituents. The nearest approach to success in this endeavor is the manufacture of *kairin*, which is reported to

* I have found "quinquinia" very valuable in this connection. It combines all the active principles of the bark.

possess all the qualities of quinine. At present, however, it costs more than the latter, and can only take its place when it can be made cheaper, and when it proves itself as valuable in therapeutics. Some of the latest experiments with kairin have thrown doubts on its efficacy, and its position is by no means established. If the ingenuity of chemists shall devise a cheap formula for the production of quinia by synthesis, the discovery will be a blessing to humanity in more than one direction.

In some months past *hooping-cough* has prevailed as an epidemic in various sections of the State, particularly in San Francisco. It has been attended with considerable fatality. Nothing new has been elicited in the treatment, unless it be a confirmation of the value of that mysterious agent, ozone. The "ozone generator," so called, is an apparatus for the slow combustion of phosphorus, which is placed at the bed-side of the patient. Its effect is extraordinary in preventing the paroxysms of cough. I have known more than one instance in which the rest of a child had been disturbed by repeated severe paroxysms during the night, and when this apparatus was evidently the means of reducing the paroxysms to one or two, and securing to the sufferer a night's repose.

It may be that the benefit derived from taking a child with hooping cough to the gas house arises from the inhalation of ozone. Were the good effect dependent on carbureted hydrogen alone, nearly the same object might be attained by allowing a portion of illuminating gas to escape from the jet into the chamber at the patient's home. In the production and purification of gas a large quantity of lime is employed to neutralize and absorb the acids and other products of coal distillation. When passing a gas house one may see piles of refuse from the retorts, resembling somewhat sulphate of iron, which is carted

away to pack under sidewalks and walls as a protection from rats. I have often thought that the exhalations from this material contained ozone, and was the chief agent in allaying the spasms of pertussis.

Our homes have been favored during the year by a comparative exemption from scarlatina and diphtheria. Sporadic cases of these scourges of the nursery have occurred throughout the State, and in a few localities one or the other has been endemic. Nothing new in their treatment has transpired. Iron, in the form of muriated tincture, freely administered, maintains its supremacy, especially in diphtheria, whilst the great weapon of defense is preventive hygiene.

For the first time in the history of the Pacific Coast, our latitude has been threatened during the past year by an epidemic fever of a malignant type, generally regarded as yellow fever, approaching from the South, and attended with much fatality in some portions of Mexico. Among physicians familiar with yellow fever in other places, and who witnessed the Mexican epidemic, a marked difference of opinion existed as to its character, not a few experienced observers regarding it as a pernicious malarial fever, dependent on local unsanitory conditions. The same form of fever has been prevalent sporadically in Panama for several months past, if not ever since last Autumn; but, although no special provision has been adopted to prevent its dissemination, it has shown no tendency to become epidemic there, nor to extend to other parts in constant communication with Panama. This fact does not accord with the general history of yellow fever.

Meanwhile false reports have been circulated from time to time alleging the prevalence of yellow fever at Guaymas and other points adjacent to our borders, keeping up a needless alarm among sensitive and credulous people. Judging from the history of yellow fever and from past experience, there

is equal in every quality to bovine virus; and that it is better to resort to it when it is at hand than to suffer the delay and uncertainty often attendant on procuring the latter.

As to the enemies of vaccination, arguments are lost on them. Ignorance, prejudice, baseless notions and absurd theories will always pervert the judgment of an indefinite proportion of men, especially if they are crooked by nature. With the history of small-pox and vaccination before their eyes, those persons who persist in rejecting the protective agent would not be convinced of their error though one should rise from the dead.

From time to time, the State Board of Health, through their Secretary, have done what they could when occasion presented, to bring about a general vaccination. They have distributed circulars and kept on hand a supply of virus for distribution. But having no power other than advisory, and no funds provided by the State, they can do but little. It is only when small-pox really invades a community that the inhabitants awake to a sense of their danger and cry for protection. And when the pestilence has once taken root it is too late for a complete defense.

Our people have two sources of protection against pestilence besides their individual labors: First, the action of local authorities legally enforced; second, the voluntary efforts of physicians as guardians of the public health. In no point of view is the attitude of our profession so honorable before the world as in its philanthropic aspect by which physicians become the self-constituted guardians of the public welfare. The uncompelled and unrewarded labors performed by them in the direction of preventive medicine are not appreciated either by governments or people. Both governments and people appear to regard it as the natural duty of physicians to prevent disease by organizations and

coming among us and to prevent immigration by representing the dangers from diseases in California, no better plan could be employed.

But the people of this Coast have another foe much more to be dreaded than leprosy, yellow fever and cholera. conjoined. I allude to small-pox. The epidemic visitations of this destroyer and deformer of mankind are irregularly periodical; the periods however, being seldom less than seven years. That term is now passed and we are liable at any moment to encounter an invasion. Such an invasion would find our population more unprepared than ever before. They have been lulled into a sense of security by the long period of exemption, and a very large proportion of the children born within three or four years past are unvaccinated. Besides, the foreign immigration adds greatly to the unprotected number, not only through their children, but through adults who have not been subjected to the protective agency for many years. Experience has proved that this latter class are almost as susceptible to small-pox as if they had never been vaccinated, and that, although most of them will have the mild form, or varioloid, no small proportion suffer severely if not fatally.

With such an immense amount of inflammable material, an outbreak of small-pox would sweep through our borders with terrible destruction. Time is required to secure protection. In emergencies it has been found impossible to obtain sufficient supplies of good vaccine virus. Hitherto the attempts to cultivate it from the cow on this Coast have failed. When sent from the East, even from the most noted vaccine farms, it is so often inert that many of our physicians have lost all confidence in it. The opinion has gained ground that virus taken from the arm of a healthy child, under the immediate inspection of a competent physician, or the crust so obtained,

As early in the year as April, before the volcanic outbreak in the Moluccas, an unusual amount of fog enveloped the Pacific Coast to the north, and extended southward as far as Los Angeles. A number of valuable vessels were lost in consequence, off the coast of Washington Territory and Oregon. At Los Angeles it was remarked that the "oldest inhabitant" had never known so much fog at that period of the year. This was previous to the volcanic commotion referred to and could have had no connection with it. But the volcanoes of Alaska were in action at the time, and had been so previously, and may have had some relation to the excess of fog.

Besides the early fog, or more properly mist,* there were other unusual climatic conditions during the season. Through the Winter, or rainy season, the southern section of the State was visited by rain storms beyond all precedent. Instead of the rain belt moving from the north southward, as is the rule, it advanced in the opposite direction. In some of the southern counties, which usually have but half the quantity falling at San Francisco and northward, the proportion was reversed. For the first time since the American occupation, the rainfall in the South was greatly in excess of the North. Another climatic peculiarity was the close relation of the sun to atmospheric precipitation, giving to the production of cloud and rain a diurnal character much more marked than usual. The sky was seldom clear for twenty-four hours at a time. At night, in the absence of the sun, rain might suddenly fol- a perfectly clear evening.

Our Winter and Spring seldom pass without several severe wind storms from the North, which sweep over the State from one extremity to the other—always dry and desiccating,

* It were well to restrict the term *fog* to the impalpable vapor which condenses in the atmosphere, mostly on land, and to apply the term *mist* to the cloud forming on the ocean and driven inland by the wind, and which consists of minute rain drops, sensible as such on contact with one's face.

and in the Spring hot and blasting to vegetation. They also exert an unkindly influence on human health, aggravating many diseases, and producing a general sense of discomfort. All through the Winter and Spring months they were entirely wanting, not a single norther occurring during the usual period of their visitation.

Believers in planetary influence will attribute these atmospheric irregularities to the conjunction of the planets which occurred at the time. The violent storms which visited Great Britain and the European Continent in the same period. and the violent earthquake in England, which followed a few months later, will confirm them in their opinion.

I have introduced these remarks on climate with the design of illustrating the slight effect, if any, of such climatic changes on the public health. The problem of climate in relation to health is extremely obscure. The greatest vicissitudes of climate in regard to temperature, moisture, and rainfall, can scarcely ever be traced to the causation of disease. There was nothing observable in this respect during the period in question. In the dryest seasons the rainfall at San Francisco and generally throughout the State, is only seven or eight inches from Summer to Summer. In the rainiest it is from thirty-five to forty inches; and yet no difference in the bills of mortality can be traced to such climatic opposites.

To a great extent the same may be said with regard to the climates of different sections and countries. The attempt to cipher out the sanitary conditions of a climate by taking into calculation temperature, moisture, and other conditions, is futile, except as to very general and remote conclusions. Nothing short of personal experience will ensure positive results.

SUPPLEMENTARY REPORT ON PRACTICAL MEDICINE.

Some of the Uses of Ergot as a vaso-motor Stimulant.

BY A. H. AGARD, OAKLAND.

The old controversy between the Fluidists and Solidists is yet unsettled. Late advances in pathological study have shorn the fight of its acrimony, and have demonstrated the folly of attempting to make the whole field of diseased action square with a dogma. Both fluids and solids are close-related factors in the genesis of disease, and thus in the treatment of disease, we sometimes address our remedies to the fluids and sometimes strive to influence the solids. In the medicinal agent under consideration we have a remedy, which, influencing the non-striated fibers of the vessel walls, seems to modify the containing fluids. In this influence which it has over the involuntary fibers, is found its great value in medicine.

Hyperæmia, either active or passive, is present in many of the abnormal conditions which the physician is called to treat. And his search for medicinal agents has long been directed after measures which would control local hyperæmias. Numerous and varied have been the devices resorted to from time to time with the object of reducing hyperæmia in a part. Many of them, empirical as they were, served a useful purpose. Some of them have had their day and have been retired to make place for more rational and efficient measures.

and others are slowly falling into disuse. Four decades have not yet passed since blood-letting, both general and partial, was largely employed to lessen blood-pressure, both systemic and local. General blood-letting was often used to relieve local hyperæmias, and this often when they were static or passive in character. This mode of relief has been almost wholly abandoned, whether wisely or not is a question which threatens to come up for further consideration, and it is believed by some who stand high in the profession that the "lost art" will be again revived. However this may be, there can be no doubt but the retirement of the lancet has led to great activity in searching for measures to take its place.

Prominent among the many advances in therapeia noted within the last twenty years, stands the treatment of local hyperæmias, by remedial agents operating through the vaso-motor nerves. The discovery of nerves that have to do with the caliber and wall tension of capillary blood vessels, and the discovery that certain agents can be used medicinally to act upon these nerves, some as depressants and others as stimulants, will some day stand out as an epoch in the history of medicine.

The field of vaso-motor medication is a very broad one, and one ripe for thought and investigation. A much larger number of our remedial appliances act through this channel than at first thought seems probable. I propose to limit this paper to one prominent vaso-motor stimulant, and can give it but a very partial consideration. I do not propose to offer anything new, but shall aim to give conclusions arrived at, drawn from such observations as I have been able to make in the rounds of a private practice. I will not burden the Society with a long detail of cases, but will try to give succinctly my conclusions, and they can be taken for what they

are worth in making up an opinion of the usefulness of the remedy.

ERGOT IN PNEUMONIA.

It is not very far back to a time when ergot was thought to be useful only in cases of labor complicated with uterine inertia, so called, and it held a bitterly contested place in the lying-in room. Many physicians believed, and some yet believe it to be an inert substance. It is comparatively of recent date that it has been used as a remedy in general practice. Not ten years since I met a physician in consultation. He was my senior in the practice and a man of deservedly good repute. The case was one of pneumonia. When I told him I was giving ergot, he excitedly exclaimed, "What the d—l are you giving ergot for? This man is not getting a baby; he has no uterine inertia that you should give ergot, and if he had it wouldn't be worth a d—n." No argument would reconcile my friend to the use of ergot at any time, and least of all in pneumonia. In spite of his opposition, the remedy has grown in favor and has come to have a very general trial, especially in pneumonia. With me it has done more to shorten the period of illness and more to reduce to a minimum the injuries to the lungs in pneumonitis, than all other remedies I have ever used. The hyperæmia of pneumonic conditions, which is so prone to relieve itself by exudations, which are often so damaging to the lung as to render the disease a formidable one, can, in many cases, be relieved by the timely use of ergot. Many of the cases which formerly used to run from twelve to eighteen days, are now convalescing in from six to eight days, and are more fully restored to health in two weeks than many under former treatment were in as many months. If used early in the disease, and given promptly in full doses, it seems to abort the attack. Often the rust-colored sputa

disappear in twelve to twenty-four hours; the pain and dyspnœa are lessened, the lividity of surface changes promptly, and in three or four days the patient thinks himself well. The *rationale* of the treatment is believed to be this: The ergot, acting through the vaso-motor nerves causes the non-striated fibers of the capillaries to contract and the engorged lung is depleted and relieved before tissue change and exudative results occur. Used later in the attack it may be of great service, but will not give such prompt relief after the capillaries have depleted themselves and filled the lung tissue with exudative matters. The remedy may be given by the stomach or used hypodermatically. When given by the latter method, the effects are more prompt and satisfactory. I am accustomed to give from one to two grains of ergotin, so called, every six or eight hours; or fifteen to thirty minims of the fluid extract every two to four hours. The remedy should be continued, generally in diminished doses, two or three days after all discoloration of the sputa has disappeared.

The drug is also potent for evil, and this fact should never be lost sight of while using it. If, during its exhibition, there appears, either from idiosyncracy or from over-dose, symptoms of its toxic action—coldness of the extremeties, great dryness of the mouth and throat, cutaneous anæsthesia, dimness of vision, auditory confusion, and evidences of cardiac weakness—the remedy should be withdrawn, and small doses of digitalis and a liberal use of carbonate of ammonia should take its place. If more grave symptoms supervene and convulsions threaten, subcutaneous injections of sulphuric ether, often repeated, have been used with the effect to relieve the symptoms promptly.

In the treatment of pneumonia I have generally found benefit from giving digitalis and ammonia as I gradually withdrew the ergot.

ERGOT IN BRONCORRHŒA.

In the Autumn of 1877, I was called to see Mr. B———, aged 46, suffering from hæmoptysis. He had developed lung trouble, with repeated attacks of bleeding from the lungs, while residing in Chicago, some years before. Later, a residence on this coast had given him five years of good health, until the Winter of 1876–7, when the cares of a large business broke him down in general health; he spent the Summer of 1877 in the East. On his return in the Autumn, while stopping in Chicago, he had another severe hemorrhage. From his first illness in Chicago he had never been free from a cough and a profuse bronchial discharge. After his attack in 1877, this was greatly increased. Shortly after his arrival home he had a sudden renewal of hemorrhage, and it was at this time that I was called to see him. I gave the ergot hypodermatically, which very promptly relieved the bleeding. On the next day I gave it again, and on the following day told him he did not need the remedy longer; but he insisted that if it would not harm him, he must have it, as he would feel more secure against the return of his trouble, and it was given. Two days later—five days from the attack—he came into the office to have the drug used again. as he said, "to make the thing sure." "By the way," said he, "is there anything in the medicine to cure my old cough? I have been coughing and raising less and less every day since I took the first dose, until I now cough and expectorate less than I have before for years." I was about to reply negatively, when it occurred to me, if ergot, acting as a vaso-motor stimulant, would arrest the hemorrhage, why would it not arrest the bronchial hyperæmia, which before found relief only by a constant exudation through the mucous follicles, and thus arrest the bronchorrhœa as well as the hemorrhage? and I replied that the medicine might have such an effect. I or-

dered him to take by the stomach thirty drops of the fluid extract of ergot every night. A few weeks later he went to the south of the State, overland, by his own conveyance, where he has since been engaged in active life, out of doors, and has most of the time enjoyed good health. He has had two or three hemorrhages, brought on by excitement, or over exertion; but has had comparatively little of his old cough and bronchorrhæa. I give this case somewhat in detail, as it is typical of several where I have found ergot serviceable in chronic bronchial troubles.

FOLLICULAR PHARYNGITIS

Is another disease of the first air passages, which is also benefited by the use of ergot. It is a trouble very difficult to cure. I have found little benefit from but two remedies, and they are both vaso-motor stimulants. Under the use of iodine, used locally, and ergot systemically, I have seen such improvement as to stimulate a hope that we may yet be able to treat this life-long annoying trouble successfully by changing the nutrition of the parts through the influence of the vaso-motor nerves.

There is another diseased condition of the pharynx which is most markedly benefited by the use of ergot. I do not know what to name it. I allude to a condition, often seen, where the pharynx and contiguous parts are so engorged that the capillaries can be plainly seen with the unaided eye, forming a net-work of red vessels running in every direction. It often precedes and is associated with hemoptysis and when seen, should give warning of danger ahead. It is probably but a visible outcrop of a general abnormal condition—a hyperæmia of the whole pulmonary system. A single dose of ergot will generally make a visible change in the parts, and its exhibition for a few days will usually entirely relieve

the enlarged appearance. We have in this peculiar hyperemia an opportunity of observing the constricting effect of ergot upon the capillaries. Little and the most powerful astringents used locally for days and weeks even, will have less visible results than follow the use of a single dose of ergot.

Reasoning from what has gone before, we are led to infer that ergot might be used locally in nasal and post-nasal catarrh and in all forms of catarrh. I have tried it locally in nasal catarrh, but without success. But I will [illegible] that [illegible] beneficial results from its use in [illegible] I am [illegible] believe [illegible] [illegible] the [illegible] [illegible] [illegible]

So far as I know, Dr. N. S. Davis, of Chicago, was the first to call the attention of the profession to the use of ergot in this disease. *See Transactions of the American Medical Association, 1873.*

THE TROPHIC ACTION OF ERGOT.

"The vaso-motor nerves, by their influence upon the circulation, are evidently connected with the phenomena of nutrition." *Flint's Physiology, page 741, third edition.*

The hint given in this paragraph opens up a very interesting field of inquiry in relation to the employment of vaso-motor stimulants. Some of the most formidable maladies which the practitioner of medicine is called to treat are associated with morbid new growths. These are all nourished from the blood. Whatever may be the conditions of their inception, they are all nourislred after the manner of healthy growths. They often have their origin in, and are associated throughout their life history with hyperæmia of the parts where they are located. Any agent that will cut off blood-supply and reduce this hyperæmia must retard their growth, and if nutrition can be sufficiently withheld, not only will they cease to enlarge, but they will undergo retrogressive changes, be absorbed and eliminated. Thus far in the history of medicine the treatment of these neoplasms has been mostly by rapid destruction, and oftentimes at the expense of the life or the future soundness of the patient. Ablation, ligation or rapid necrosis by escharotics have been the means used for centuries in dealing with many of these troubles, and whenever they were found located where these agencies were inapplicable, the victim was given over as incurable. Some of these adventitious growths have been successfully treated by the use of iodine—by absorption, as it has heen styled, but this is probably a misnomer based

upon a mistaken theory of the action of the remedy. Later investigations threaten soon to place iodine in the catalogue of vaso-motor stimulants. When this is done many of the phenomena attending its action will become more rational. It will be held that its beneficial effects in the treatment of morbid new growths result from the fact, that, acting as a vaso-motor stimulant it cuts off nutrition and gives chance for retrogressive change and absorption; but it does not energize the absorbents as generally held.

ERGOT IN THE TREATMENT OF MORBID NEW-GROWTHS.

One of the earliest diversions of ergot from its time honored use in the lying-in chamber, was its employment in the treatment of uterine fibroids. Here it has been found encouragingly useful. A large percentage of the cases treated with it have been materially benefited. Many have been cured. Many others have been so far benefited as to have the growth of the tumor arrested.

I am hopeful that further use of the remedy will establish the fact that it is quite as useful in arresting the growth of other tumors as it is with the fibroma. The reports relating to this use of ergot, so far as I have observed, are rather meager, and as I have among my cases one that is in point, I will ask the indulgence of the Society while I give it briefly.

Some four years since I was consulted by Mrs. C. æt. 24, in good general health, in relation to a large tumor on the right side of the neck below the ear. It dipped under the angle of the jaw, extended beneath the sterno-cleido-mastoideus, protruded behind the ear, which it pushed forward and gave the neck a very uncomely look and caused her to carry the head inclined to the left and forward. She first observed it about four months previous to her visit to my

office. The tumor was nodulated and quite dense to the feel, was slightly tender under pressure, she had twinges of pain in it at times, the skin moved freely over it. My diagnosis was a little uncertain. I believed it to be an adenoma. Wishing a little more time to observe the tumor, I prescribed iodine to be taken internally and used externally; not so much because I expected favorable results, but it was the orthodox thing to do. At the end of a fortnight the tumor had evidently increased in size. What next? was the question, and it was one not easily answered. "Cut it out" the young surgeon would say; but I had once been young and several times while delving in this region for tumors, some of them much less formidable in appearance than this, I had found occasion to wish myself relieved of the operation before I could relieve my patient of their burrowing neoplasms, and my enthusiasm for "cutting out" waned. I at last, with some misgivings, concluded to attempt to starve the thing out by the use of ergot, and ten drops of the fluid extract was forced deeply into the most prominent part of the tumor through a hypodermic needle. Pain for a few minutes was followed by tenderness in the part punctured, which subsided in three days. On the fifth day I made another insertion, and thus on until at the end of one month, I had punctured it in four places. At my next visit the patient "begged off," saying she could stand the pain from the needle, but it made her feel, as she phrased it, "so painfully keyed up all over" that she could not endure it. The tumor at this time was found to have diminished in size—markedly so in the location of the first puncture. It continued to grow smaller, until at the end of a twelvemonth no distinct traces of it could be found, and it has never returned.

The result in this and in other cases where I have used it,

lead to the conclusion that ergot may be safely and successfully used to modify the nutrition and arrest the growth of adenoid and other tumors. The fact that it can be used advantageously in the treatment of euplastic growths, logically leads to the somewhat theoretical consideration of its employment in the treatment of cacoplastic formations and aplastic deposits. To say that ergot will cure cancer and tubercle, would certainly be assuming too much; but it seems to me that its use is recommended by more rational considerations than attach to nine tenths of the remedies which have from time to time been brought forward and used in the treatment of these diseases. Ergot now stands at the head of our list of vaso-motor remedies; but further investigation in this direction may give us other agents still more potent. I am of the opinion that if we ever grow wise enough to cure cancer, it will be done by some remedy which, acting through the vaso-motor nerves, will modify the mal-nutrition of the parts involved. The adenoid deposits and growths which so readily degenerate into the aplastic matter known as tubercle are nourished by the capillaries of the tissues in which the deposit is found. So also the cacoplastic cancer tissue is nourished in its growth by the same capillary system that furnishes blood for the normal growth and repair of the body. It makes a very bad use of the nutrient material furnished, and for this reason the supply should be cut off.

I do not know, in the whole round of medical study, a more promising field for investigation, one where labor is more needed, and where, theoretically, results are more hopeful than is opened up by these brief thoughts in relation to the treatment of cacoplastic growths and aplastic deposits by the use of vaso-motor stimulants. But I cannot elaborate the subject here, and will leave these crude hints, hoping that others may feel an interest and be able to give them more

mature consideration. The novelty of new discoveries, some of which are as yet of very doubtful value, has well-nigh set the profession wild in etiological studies. Our therapia is being left in the rear. It is to be hoped that while the Nimrods of the profession are beating around, almost madly, hunting in the thickets and morasses of morbid conditions after the unseen nonentities which are brought in as the genesis of disease, there will be left behind staid, thoughtful thinkers to tell us what to do at the bedside of the sick, to the end that our knowledge of the causes of disease and our therapeutics do not become divorced. It will be a sad time when the profession becomes starved from ingesting too much unassimilated knowledge, and our patients die because we have not learned how to cure them.

It is well to know the shape, characteristics, and life history of cancer cells; to know that there is a bacillus tuberculosis, and to know, if we can, how much, if anything, it has to do with the genesis of tubercular conditions. The profession will never forget to honor those who can show us these things. But the practitioner who can bring to the bedside of the cancer or tubercle-stricken patient a remedy which will cut off the nutrition that feeds the cancerous growth, and thus starve it out, or who can change the blood supply that furnishes the adenoid pabulum for the cacoplast growth which in its retrogressive changes degenerates into tubercle, and thus lessens or arrests its formation, is also a high priest in medical science, and in the hands of such I leave these interpolated thoughts upon the subject of vaso-motor treatment of morbid new-growths.

Favorable results have been recorded following the use of ergot in typhoid fever, dysentery, cystitis, enlargement of the spleen, and in many other morbid conditions. To make even a brief mention of all the diseases where this remedy has

been found of value, or where it might be expected to be beneficial in relieving hyperæmic conditions, would extend this paper to an unwarranted length. As soon as the fact that ergot is a powerful vaso-motor stimulant, and as such acts to constringe the capillaries and changes the nutrition of hyperæmic organs, is accepted, every intelligent practitioner will at once appreciate its clinical worth and see a wide field for its use.

REPORT ON SURGERY.

BY R. A. MC LEAN, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE SOCIETY: In reviewing the literature of surgery for the past year, it will be found, that although no new operations have been devised, a very satisfactory advance has been made in the management of those disorders which come under the surgeon's care. For the past few years, the list of affections amenable to operative measures has been continually lengthening. The domain of general medicine is each year being more encroached upon by the surgeon, who in turn eventually gives way to the specialist. We now know that certain of the diseases of the abdominal organs are better dealt with by surgery than by medicine. It has been but a short time since operative measures have been thought of in connection with malignant disease of the pylorus, æsophagus or pancreas. A diseased spleen, a disorganized or floating kidney, the impaction of a nephritic culculus in the ureter, of a gall stone in the ductus communis, were regarded as affections beyond the reach of the knife. Thanks, to the enterprise of modern surgery, this has all been changed. It is not now regarded as unwarrantable boldness for the surgeon to open the abdomen and search for the cause of urgent symptoms, which threaten quickly to end the life of the patient. In intussusception such a course has enabled the physician to afford prompt relief, when no other treatment could have averted death.

In the reports of cases of disease of the thoracic organs, tapping of the pericardium and resection of the ribs for empyema are frequently mentioned. Portions of the lung have recently been removed through the walls of the chest. The conservative practitioner may in reading the reports of such operations, inquire, "do such achievements deserve to be regarded as surgical triumphs, and is the state of the art actually advanced by them?" He reads that the vast majority of these cases terminate fatally; why not then leave the patient to die in peace. Fortunately for the science of medicine and for humanity, the obstructionists in the profession are each year becoming more distinctly the minority. It was the way with ovariotomy forty years ago, that it now is, with nephrectomy, excision of the larynx, pylorus, uterus, spleen, tongue and rectum. The unfavorable statistics of these modern operations constitute no more a just argument against them than did formerly, the long list of fatal ovariotomies. It is unfortunately true that the nature of the disease affecting the ablated organ will in many cases, owing to its inherent tendency to recurrence, eventually carry the patient off. Even in such cases, we may reasonably expect to prolong life in comparative comfort. The surgeon's first duty is to use his best endeavors to prolong life and relieve suffering for the time, regardless of what may be the future termination of the case. The now rapidly accumulating experience, and the consequent greater manual skill, will, in the near future make most of these procedures safe as regards their immediate result. It will then be known how to locate the extent of the infiltration in epithelioma of the pylorus. In nephrectomy, the diseased organ will be the one selected. The congenital absence of one kidney will be detected before the single organ is removed, and as diagnosis is placed upon more certain grounds the results of these operations will compare favorably with those of ovariotomy.

Of late it has appeared to be essential that every reporter of a surgical case declare his position in regard to antiseptics. With but few exceptions, the account of every case is prefixed by the statement that strict antiseptic measures were observed. A few years ago such a declaration had a different meaning from what it now has. Listerism, with its accessories of spray, carbolized gauze, drainage tubes, antiseptic catgut, protective, and mackintosh, were regarded as essential to success. Strict antiseptic surgery is now practiced by several methods, widely differing from the original Listerism as regards details, and yet identical with it in essential principles. The later developments of antiseptic surgery all tend to simplify the methods of its application. In no direction has greater progress been made during the past year than this. It is now admitted that all that can be claimed for any antiseptic system over the ordinary careful treatment of wounds, is in the first instance the prevention of infection by excluding the air, the maintenance of purity in the wound by the withdrawal of its fluid products, and by so changing them that putrefaction cannot occur. One by one the original dicta of Lister have been laid aside. The spray first, and now carbolic acid is about to be relinquished. Boracic acid, iodoform, chromic acid, and numerous other chemicals, have been found to possess antiseptic properties equal to carbolic acid, and at the same time to be more manageable. Very recently it has been shown that corrosive sublimate is an exceedingly active antiseptic, even in so weak a solution as 1 part of the salt to 1000 parts of water. It is now being used extensively in Germany, in place of the carbolic solutions. It has the advantage of not being volatile, and hence remaining in the dressings permanently. It is non-irritating in the weak solution required, and from the small amount necessary, has the advantage of being more easily handled than

[illegible] first dissolv[illegible]
[illegible] Of this [illegible]
[illegible] to the quar[illegible]
[illegible] bathing the wound
[illegible] drainage tubes. [illegible]
[illegible] half an ounce of the concen-
[illegible] water, with which the antisept[illegible]
[illegible] saturated, and afterwards allowed
[illegible] simplest antiseptic method now
[illegible] of the following observances:
[illegible] soap and hot water of the parts
[illegible] by a second washing with the
[illegible] The hands of the surgeon and
[illegible] with it, and the instruments,
[illegible] drainage tubes are kept in it during
[illegible] operation being completed, and the
[illegible] soaked in the solution, the wound
[illegible] with the antiseptic; the drainage
[illegible] the sutures inserted, and the edges
[illegible] Over and around it is now
[illegible] previously soaked in the stronger
[illegible] This compress may consist of any highly
[illegible] from any impurity previous to its
[illegible] strong solution. The dressing is com-
[illegible] compress to the parts with an absorb-
[illegible] the same manner. It does not appear
[illegible] the wound and the mackintosh over
[illegible] been dispensed with; but they, too,
[illegible] acid will be put aside. The pro-
[illegible] to preserve the skin from the irritat-
[illegible] acid, is not required beneath a
[illegible]; and the absorbent surface of such
[illegible] certainly prevent the accumulation

of the fluid products of the wound about it than when the protective is used. The absence of the mackintosh will allow free evaporation from the compress, and thus promote a rapid drying of all fluids flowing from the wound. Its action in preventing the volatile carbolic acid from leaving the gauze too soon, is not required in the corrosive sublimate compress. The subsequent dressings may be applied as frequently as the compress becomes nearly saturated with the secretions of the wound.

The perfect antiseptic method has not yet been devised, but the indications are that it will not be long until the system has been so perfected and simplified that an unskilled nurse, or the friends of a patient, will be able to apply it with perfect safety in the absence of the surgeon.

As it will not be possible for me to review critically much of the recent progress in surgery, I shall only refer very briefly to a few of the methods and expedients that have lately been devised, and at the same time present a few cases, with their histories, occurring in my own practice.

In epithelioma of the tongue, the operation of total ablation by the method of Whitehead, has lately been frequently performed both in this country and in England with very favorable results, as regards the immediate condition of the patients. Statistics as yet are wanting regarding its power to protect the patient against recurrence. It has the advantage over the older operations of being more rapidly performed, of freedom from disfigurement of the face, and of being less apt to be followed by secondary hemorrhage than when the galvano-cautery, thermo-cautery, or ecraseur are used. A strong double ligature is first passed through the extremity of the tongue and tied, in order to give the operator complete control of the organ. With a strong, straight, blunt pointed scissors, the tongue is first separated from its attachments to

to the jaw. The pillars of the fauces and the deep muscular attachments well beyond the limit of the tumor, are next cut through. Should hemorrhage from the linguals occur, they are twisted or ligated; if not, the oozing is wiped away with the sponge, and the posterior attachments cut through. The bleeding vessels are now twisted or ligated, and finally a double ligature is passed through the edges of the mucous flaps forming the remains of the glosso-epiglotidian folds. The ends of this ligature are tied and brought out of the mouth, in order to give control of the tissues in the floor of the mouth, in the event of secondary hemorrhage.

In two cases occurring in my own practice, as a preliminary measure I secured both lingual arteries, as practiced by Billroth, and removed the submaxillary glands along with the tongue. The hemorrhage was so free that numerous ligatures were required, and the occlusion of the linguals seemed only to have the effect of preventing bleeding from their own trunks when cut through. The immediate result in both cases was successful, but they finally died from recurrence of the original disease in the neighboring tissues. In this connection I will relate the histories of two cases of extensive removal of the tissues of the mouth and chin for epithelioma of the lips. I am indebted to Dr. Walter Bates, Resident Physician at the City and County Hospital, for the history of these and some of the following cases:

CASE I.—Joel Simpson, 46 years of age, entered the hospital May 30th, 1883, with an extensive ephitheliomatous tumor extending almost completely around the mouth, involving all of the lower, and part of the upper lip. The tissues of the cheeks, chin, submaxillary and submental regions were swollen and indurated, being evidently infiltrated with the disease. The patient's appearance is shown by the accompanying photo-

graph. He had been hurt on the lower lip four years before. The wound never healed but gradually increased in size, until it reached its present condition. It was decided to make a free excision of all of the diseased tissues. On June 5th, the following operation was performed: The tongue was first secured by a strong double ligature passed through its extremity, the tissues of the cheeks were then cut through on both sides, beginning at the free margin of the healthy part of the upper lip, and passing outward and downward toward the posterior extremity of the body of the inferior maxilla on both sides. The incisions then passed downward and forward, meeting above the hyoid bone. The lower jaw on both sides was sawn through, and the entire mass including the lips, chin, anterior part of the jaw and submaxillary glands, was dissected away. The vessels were secured as cut. No attempt was made to close any part of the extensive wound. By July 12th, the wound had contracted to the extent shown in the second photograph, and plastic operation was now performed to lessen the large opening, and enable the patient to retain his saliva. The tissues of the neck and cheeks were dissected up, trimmed, and brought together below, in order to form an under lip. Some sloughing of the flaps followed, and by September 4th it was found necessary to make another attempt. The edges of the lower part of wound were freshened and dissected up a short distance on each side and approximated. Union occurred with the result of forming a very fair under lip, as shown in the last photograph. The patient is now perfectly well, eats soft food easily and can make himself perfectly understood.

CASE II.—Patrick O'Connor, 55 years of age, entered the hospital February 28th, 1884. The entire lower lip and part of the upper were absent. The edges of the wound were thick-

ened and ragged, and the neighboring tissues of the cheek, the submaxillary and submental regions were infiltrated. The diseased tissues were removed in the same manner as in the first case. It is now six weeks since the operation and the wound has already contracted to the extent seen in the patient. A plastic operation will now soon be performed in order to form a substitute for the lower lip. (Case exhibited.)

In empyema, it has been found recently, that a cure is generally obtained by making a very free opening into the pleura, and the use of large sized drainage tubes. The necessary space is obtained by exsecting portions of two or more ribs together with the periosteum. When but one rib is cut through, bony reproduction is so rapid that the opening closed before the cavity is obliterated. The pleura is then washed out with an antiseptic solution and the large drainage tube secured in the wound with sutures. Antiseptic dressings are then applied.

Excision of the head of the femur for hip joint disease, may now be said to have become the established treatment when caries exists. From the histories of many of the cases recently published it appears that the operation was not resorted to until after extensive destruction of tissue had occurred, and hence the rather large proportion of fatal cases. For several years past, I have operated as soon as the probe showed carious bone to be present. In these early operations every case has recovered, and the result has been usually only slight shortening with some motion at the hip joint. I do not remove the trochanters along with the head unless they be also carious. The following cases I have been able to present to the Society, and I will briefly give a summary of the history of each.

CASE I.—John Felton, of this city, was brought to me in June, 1878, complaining of pain in the knee and hip of the left side. The affected limb appeared lengthened, and the toes were everted. The general symptoms indicated the existence of the stage of effusion within the capsule. The patient was put to bed, and extension applied. Suppuration followed in the joint. When the abscess was opened the head of the bone was found to be carious. In September, excision of the head of the femur was performed. The opening did not entirely close until two years after the operation. The boy now has a very serviceable leg, with but little shortening. (Case exhibited.)

CASE II.—Robert Ewing, when eighteen months old, rolled down stairs, striking repeatedly upon the left hip. He began complaining almost immediately, and when two and a half years old, had several sinuses upon the outer and upper aspect of the thigh. The probe readily came in contact with carious bone, and in September, 1878, the diseased head of the femur was removed. Nine months after the operation the sinuses had all closed, and the general health was greatly improved. He has not been troubled since with the hip, and has good use of the limb. (Case exhibited.)

CASE III.—Grace Woodward. Five years since the patient fell down stairs and injured the hip. Morbus coxarius gradually developed until 1879, when she was brought to me. The joint was carious, and excision of the femoral head was performed. She was confined to bed four months. Since then she has been up and walks easily, with assistance from a high heel and sole. (Case exhibited.)

CASE IV.—John Weldon was brought to me three years ago, with the the usual history of an injury to the hip. Carious

bone was present, and excision was performed. The wounds in this case were slow in healing, but all sinuses were closed one year after the operation. His present condition can now be seen. (Case exhibited.)

CASE V.—Frederick Moultner, twenty-one years of age, entered the hospital May 2d, 1882, with a large abscess of the hip, having several openings. The swelling first appeared in 1881, and opened in the early part of 1882. An examination showed much diseased bone present. There was shortening of the extremity, with inversion of the toes. The patient was extremely emaciated, and his general condition very unfavorable. He improved slightly after being in the hospital three weeks, and on May 27th, the head of the femur was removed. The patient began to improve in general health at once. In July, 1883, he left the hospital, and in October following the sinuses had all closed. His present condition can now be seen. (Case exhibited.)

CASE VI.—Lafayette Ferguson entered the hospital in May, 1882, with abscess communicating with diseased bone in the hip joint. In November following, excision was performed. The patient rallied well from the operation, and has steadily improved in health since. The sinus is almost entirely closed. (Case exhibited.)

In the reports of operations for ununited fractures during the past year, most of them were treated by drilling the extremities, and driving ivory pegs into the openings, or by cutting down subcutaneously upon the extremities of the bone, and freshening the tissues in the vicinity with the tenotomy knife. I find but few cases reported of resection, drilling and wiring the fragments together. Having tried repeatedly all of the simpler procedures in ununited fracture, and finding them to fail in my hands invariably, I now prefer to operate by re-

secting and wiring the bones together. This operation when performed upon the femur has been described by most authoris as exceedingly dangerous,and only to be done as a last resort. In four cases of resection of the femur for pseudarthrosis I have had but one fatal case, which occurred many months after the operation, and not until firm bony union had occurred, as may be seen by this specimen, removed from the patient after his death from chronic pyemia. (Specimen exhibited.) The other three cases all recovered, with useful limbs. Two of these cases I am able to present to the Society to-day, and I will briefly mention the history of each case.

CASE I.—Nelson Martin, of Truckee, was thrown from a train of cars in October, 1878, and sustained a fracture of the right femur through the middle. The case was treated at his home, but union did not take place. In the spring of 1879, he came to San Francisco for treatment. An examination showed complete non-union with much shortening. As the patient seemed averse to an operation, he was put under the influence of chloroform and the ends of the bone were violently rubbed together and as much disturbance effected as was possible by twisting and bending the lower part of the thigh upon the upper fragment. A plaster dressing, fixing the limb was then applied. In two months this dressing was removed and no union was found to have resulted. The patient then consented to an operation, which was done in the following manner: A free incision was carried to the bone along the outer aspect of the thigh. The ends of the bone were freed sufficiently from the surrounding tissues to enable them to be brought out of the wound, the periosteum not being disturbed. The enlarged callous upon the extremity of each fragment was removed with the metacarpal saw, and the fragments were drilled in two directions, so that each hole crossed

the other at a right angle. Two large silver wires were now passed through the openings in such a manner that they crossed each other. The ends of the bones being closely approximated the wires were drawn tight and twisted. The wound was now washed out and drainage tubes adjusted so as to reach from the bone to the surface. The upper and lower angles of the wound were united, and the limb dressed with a bracketed long external splint. The patient bore the operation well, and in four months the sutures were untwisted and removed. In view of the failure to get union after the first operation, it was thought best to keep the patient perfectly quiet in bed until all danger of breaking a feeble union was past. Accordingly he remained in bed for five months. It was then found that firm union had occurred and the amount of shortening within three-quarters of an inch. The patient's use of the limb may be seen. (Case exhibited.)

CASE II.—Hugh Gartland was injured in a quartz mill in Idaho in 1882, getting his right femur fractured near the middle. Splints were applied, but in six weeks, no union having occurred, he came to San Francisco. He was first treated by irritating the ends of the bones by violent rubbing. This process seemed to result in some firmness, when he fell one day from a horse car and refractured the bone. He was then brought to the City and County Hospital. Again the bones were rubbed together and the limb kept fixed by the plaster dressing. In two months the leg was examined and no nnion found to have occurred. He then went from the hospital to his own home, where I operated upon him about six months ago. The ends of the bone were sawn off, holes drilled, and the wires passed as in the previous case described. The wires were removed three months after the operation, and the

opening soon after healed. It has now been six months since the operation and the bone appears to be perfectly united. (Case exhibited:)

CASE III.—Frank Reinecker, 18 years of age, entered the hospital in May, 1882, with an ununited fracture of the humerus at the junction of the middle and lower thirds, which had existed for eight months. Resection was done and the fragments were found to be fitted closely together by a V shaped slit in the end of one into which the other fitted. These ends each had a cartilageous covering which were joined together with ligamentous tissue. The ends were sawn off so as to retain the V shaped arrangement of the bones. Two strong silver wires were then passed through holes which had been drilled through each fragment, so that each wire crossed the other at right angles. The arm was then fitted into a plaster mould which had been made before the operation. In ten weeks the wires were removed, and three weeks afterward the splint was taken off also. The patient now has a strong, useful arm, with free motion at the elbow joint. (Case exhibited.)

CASE IV.—In 1882, H. Campbell applied to me for treatment for an ununited fracture of the right tibia, received the previous year by trying to stop a runaway team. The original fracture was compound. When the wounds had healed it was found that no bony union had occurred. The patient was treated for some time by irritating the ends of the bone, but to no effect. Resection was finally determined upon, and the leg was laid open by a free incision along the tibia. The extremities of the bone were covered with cartilage, and were removed obliquely in the line of the fracture. Strong silver wire was then passed through holes drilled at right angles to each other in each extremity of the bone. Firm union followed, and the patient is now able to walk with but a very slight limp. (Case exhibited.)

[illegible]PORT ON SURGERY.

[illegible]G CASES DURING THE YEAR.

[illegible], M. D., OAKLAND, CAL.

[illegible]SE I.

[illegible] *Joint. Operation during* [illegible] *ccident. Hyperesthesia and* [illegible] *and accidental discovery of*

[illegible] aged eleven, jumped from local [illegible] Oakland, at 8:30 A. M., April 18th, [illegible] over, and received an extensive [illegible] He was removed quarter of [illegible] I soon saw him, in consultation [illegible]. Hemorrhage had been free, but [illegible] pulse very weak and tem- [illegible] bottles of hot water about him, cov- [illegible] gave whisky. Preparations were [illegible] which time—about an hour— [illegible] His skin remained cold, and his [illegible] left axilla with great care, and by [illegible] did not rise above 96° F.

[illegible] of gaining ground by delay, it [illegible] the operation. Dr. Trembly ad- [illegible] and ether, in the order named, and [illegible] amputation at the shoulder

joint. Upon dissecting up the crushed tissues to the shoulder, it was found that the brachial artery at the point of its commencement had been severed and tortioned by the injury; though the vessel was about two inches longer than desirable, the closure was so perfect that I did not interfere with it, being desirous of avoiding the use of ligatures. I was, however, obliged to employ one to a cut branch of the axillary, after repeated failures at tortioning.

The humerus was crushed to its head, and the soft parts were lacerated and contused to the shoulder, but by carefully cutting and trimming away the injured tissues, a sufficient covering of sound skin was saved. After the disarticulation the stump was thoroughly cleansed with a four per cent. solution of carbolic acid, and the flaps closed with silk sutures, except for a space of an inch—left open for drainage. The dressing was simple, and consisted, first, of a thin layer of absorbent cotton, soaked in the carbolized water, and then of a thick layer of dry absorbent cotton, which was retained by bandage around the chest.

Patient came near dying from asphyxia during the operation, and several times the anæsthetic had to be suspended and the tongue withdrawn. At the conclusion of the operation the tongue had to be held out for at least fifteen minutes. Restoration, however, gradually came about, and an hour after the operation reaction was perfect. Patient continued to do well, and on the fourth day, adhesion having occurred along the entire line of the wound, the sutures were removed.

On the seventh day, patient had some fever, pulse quick and temperature 100°, and occasional slight delirium. The stump looked well, though there were at this time little superficial gaps where the sutures had been, and at each of these there was a drop or two of slightly purulent exudation. The

ligature remained and there was no discharge at its site; but close to it in the track of the now cicatrized wound, there was a small flesh-looking mass about the diameter of an ordinary pencil, projecting slightly above the surrounding skin. It was exquisitely sensitive, and from its center protruded a fibre about an inch in length, which looked like an ordinary silk thread. I caught it with forceps and drew upon it, causing intense pain; it was then drawn out a half inch farther and cut off close. On the following day it was again observed protruding an inch or more, and upon pinching it with the forceps it was found to be sensitive, and the slightest traction upon it caused excruciating pain; it was however drawn out as far as possible—a half inch at least, and cut off close. After this nothing was seen of it.

To return, patient's fever abated promptly, and on the eleventh day the ligature came away by traction. There was no discharge accompanying it, and the stump appeared quite healthy—except for the little sensitive projection alluded to, which was yet so extremely sensitive that when lightly brushed or touched with a soft sponge, patient cried out with pain.

At the end of the third week patient was out of bed, and fairly convalescent; and at the end of the fourth week the stump seemed to be perfectly sound, except for the presence of the sensitive projection which was now itself healed over. Fearing however, that this sensitive point might always be a source of annoyance, held as it was in the grip of an already rigid cicatrix, the patient was put under the influence of ether by Dr. Trembly, and I cut out the mass—removing an elliptical mass of dense cicatricial tissue to the depth of an inch. Upon exploring the cavity thus made, with my finger, a little pressure caused the bottom to give way, admitting the finger into a pocket beneath, which contained

about an ounce of bloody pus; the latter, however, was quite sweet. The cavity was syringed out with a five per cent. solution of carbolic acid, tented and dressed with absorbent cotton, and by means of thorough daily antiseptic cleansing and tenting, healed up rapidly to near the surface. But from this time on, as is usual in such cases, the healing became slow. Cicatrization and repair were not perfected until the 15th day of June. Patient was therefore under treatment two months.

REMARKS.—Among the many cases of perfect reaction after amputation for "crush" during profound shock, reported by me, this is perhaps the most instructive.

The tortioning of the main artery by the accident was so perfect as to suggest the invention of an instrument for tortioning vessels, which would imitate the crushing, grinding and severing action of the car wheel.

The sensitive mass in the track of wound, was doubtless a protrusion of nerves from the brachial plexus. And in this connection should be stated the fact, that for a time, pressure at several points along the central part of the line of union of the flaps—in the neighborhood of the sensitive projection, gave rise to distinct special sensations referable to the wrist and hand—pressure at one point causing pain at the wrist; at another, pain in the little finger; at another, a burning sensation in the palm of the hand, and so on. These sensations were so definite and pronounced as to leave no doubt of their genuineness, or of their certain production from the irritation by pressure of distinct nerve filaments which had originally controlled sensation at particular parts of the hand and wrist. So evident was this to me that I shall never again doubt that the sensations of aching, pain, etc., of ablated extremities, may be real; or that they result from pressure of nerves within the stump, or that they may

not be relieved by operation; for in this case the special sensations referred to, as well as the local hyperesthesia, did not return after the operation for removal.

The thread-like projection spoken of was to me phenomenal; I examined it with the microscope and found it composed of fusiform cells, and that it was therefore not a nerve.

In regard to the pus cavity, the sudden display of fever at the end of the first week, may have been caused by the pus formation, but its subsidence, together with the subsequent rapid and apparently perfect convalescence of the patient, and the density of the cicatrix, and perfect integrity of all the tissues of the stump to the depth of an inch, suggest the possibility of the matter having been safely absorbed but for its accidental discovery.

CASE II.

Synchronous Amputation of Right Thigh and Left Leg. Died from Neglect of Attendants.

Peter Quin, aged 9, was run over by Berkeley train at Shell Mound Park, about 3 P. M., September 13th, 1883. There was crush of both legs and a deep wound of perineum. He was brought at once to Oakland, and to my office. I dressed his wounds temporarily and had him removed to his home, where he arrived about 5 P. M. At this time there was considerable shock. After administering stimulants, Dr. L. S. Burchard administered ether, and I amputated the lower extremities—the right above the knee, and the left at middle third of leg; dressed stumps, sutured and dressed perineum. Patient bore the operation well, and rallied promptly after. He was put to bed in a most promising condition; but owing to the grossest carelessness on the part of his parents and attendants, he was allowed, against my explicit orders, to sit up

frequently, and to drink large draughts of cold water, and at 8:30 P. M.—about two and one half hours after operations, and about five hours after injury—while sitting up in bed, fainted, sank back, and died.

REMARKS.—This was the most promising case of double amputation that I have ever had, and yet here was the only death. But this was the only one of the several cases that had been permitted to sit up. My experience in surgical cases, and as an experimenter upon animals, warrants me in laying down this rule: That any patient allowed to sit up within two or three hours after a capital operation, and especially when such operation is preceded by the shock of injury, is almost certain to faint and die; and that after such operations it is extremely dangerous for patients to sit up during the first twelve hours. I am therefore of the opinion that it is better for the surgeon to leave his cases of injury requiring amputation entirely "in the hands of the Lord," unless the attendants have sense enough to obey orders.

CASE III.

Synchronous Amputation of Both Legs at Middle. Recovery.

Oscar Allgier, aged twenty-two, was run over by cars at West Oakland, at 7 P. M., September 24th, 1883, and had both legs crushed above ankles, and the left hip dislocated. He was taken at once to the Receiving Hospital, where I attended him.

There was a moderate degree of shock; temperature, 97°. Without delay patient was anæsthetized by Dr. H. T. Legler, and I amputated both legs at the middle by modified circular operations. The left hip joint was dislocated upward, but reduction could not be effected, as dislocation was thought to

be complicated by fracture, and moreover, because the patient's condition would not admit of his being held longer under the influence of ether.

He was put to bed, and recovered consciousness in about half an hour, but general reaction was slow. On the following morning his condition was favorable; pulse, 94; temperature, $100\frac{3}{4}^{\circ}$.

The stumps were dressed daily with absorbent cotton soaked in a three per cent. solution of carbolic acid, the dressing being kept damp by said solution. During the first few days small doses of tincture of aconite were given to allay the fever, and small doses of tincture of opium for pain, and citrate of magnesia was used as an aperient. Both stumps healed by first intention, and the sutures were cut out; but the ligatures healed in so firmly that much difficulty was found in removing them. The manipulation of the ligatures in order to break down the tissues and loosen them, caused some inflammation, and some parting at the line of union at each stump. At the end of the second week, however, the union at each stump was firm; and at the end of the third week cicatrization of both stumps was complete.

The hip-dislocation caused the patient more pain and inconvenience than the amputations; but movement at the hip gradually became free and painless. At the end of the fourth week he could sit up, help himself to a chair, and back to bed, without pain or inconvenience; and at this time he was discharged, and sent to the County Infirmary. He has sound and well-formed stumps, and will be able to walk with artificial legs—when he gets them.

CASE IV.

Fracture of Left Thigh, both Elbows, both Wrists, and Nose, and Scalp Wound. Recovered. Remarks on treatment of Fracture of Femur.

William Jones, age 21, painter, fell from scaffold thirty-six feet to ground, about 1 P. M. January 19th, 1884. He was immediately brought to the Receiving Hospital when Dr. H. T. Legler and myself attended him.

He had a wound over the left eye, which exposed the bone for the space of an inch; it was closed by four sutures.

He had fracture of the bones of the nose—the bones having been driven over to the right side. The bones were raised in proper position and retained there by plugs of absorbent cotton.

He had fracture of the left thigh bone about three inches below the trochanters. The lower end of the upper fragment was tilted forward against the skin, and the upper end of the lower fragment was drawn upward and backward, causing a shortening of about two inches. This fracture was reduced and dressed with an anterior thigh splint (felt), and a long outside splint—the New York Hospital splint—extension being applied by means of the screw adjustment attached to the loop of the adhesive plaster which had previously been applied to the sides of the leg. Counter extension was made by the perineal strap belonging to the splint.

He had comminuted fracture of both elbow joints. So extensive were these fractures that each elbow seemed to be a sack of loose bones, and it required a good deal of manipulation to restore the numerous broken fragments into the joint form. The adjustment of these fractures was so painful, and the patient was becoming so exhausted, that ether was

administered. The elbows were dressed temporarily with angular pasteboard splints.

He had Colle's fracture of both wrists, but they were merely bandaged, as the displacement in each was slight, and on account of their comparative insignificance, the impossibility of reduction without serious disturbance of the elbows, the difficulty of retaining in proper position while treating the elbows, and moreover, on account of the danger of keeping the patient longer under the influence of ether, and of intensifying and prolonging the extreme shock under which he was then laboring.

He was put to bed, rallied slowly, passed a restless night, and on the following morning had considerable fever—pulse 120, temperature 101°—and complained of much pain and soreness. By means of occasional half drop doses of tinct. aconite and small doses of morphia, and the liberal eating of ice, and drinking of iced milk, his fever was gradually abated, his pain relieved, and his general condition improved.

On the third day there was found to be nearly an inch shortening of the thigh, and weight extension was substituted for the screw, and counter extension made by elevating the foot of the bed. Careful measurement was made while adjusting the weight, the latter being increased to thirteen and one-half pounds—the shortening being reduced to one-third of an inch.

On the sixth day the elbows were redressed and put up in angular wooden, anterior and posterior splints. At same time the thigh was redressed as the bandages were loose. A compress of cotton was placed over the lower end of the upper fragment of the fractured femur—under the anterior splint, as there was a tendency of the fragment to tilt forward against the skin. New solid hair mattresses were now placed under the patient.

On the tenth day the elbows were redressed as before and the patient at this time was laid upon a canvassed frame, so constructed that the patient could be lifted from the bed, and evacuate his bowels without the slightest movement of any part of his body. This apparatus was constructed so that the weight cord passed over a pully suspended by a cord from a horizontal elevation at the lower end. On this canvas the patient remained practically immovable until February 25th, the weight extension being maintained *uninterruptedly* until this date, when it was removed. During this period the thigh was not touched, except on two or three occasions when an additional roller was passed carefully around over the anterior splint. The limb was frequently measured, and showed uniformly about one-third of an inch shortening. On February 16th, however, this shortening seemed a little less than usual, and fearing non-union the weight was reduced to twelve pounds. From this time on there being no further shortening, the weight was reduced *gradually* in order to avoid displacement in case of imperfect union, and in order to gradually accustom the muscles to the loss of the weight.

February 17th, the weight was reduced to eleven pounds, 19th, to nine pounds; 21st, to seven pounds, and February 25th, as stated, entirely removed. Careful measurement at this time showed exactly one-third of an inch shortening.

On March 6th, the splints and bandages were removed, after which, only one-quarter inch shortening was found—the difference between one-quarter and one-third of an inch being due to the deflection of the tape line by the dressings. Upon removal of the splints, etc., there was not the slightest soreness or chafing of the skin of the limb—splints having been well padded with cotton, the bandages having been smoothly applied, and care having been taken in applying the adhesive

straps to the leg, and in the adjustment of the block and cord at the loop.

To return, at the end of the second week of treatment, the elbows were again dressed, but only with the inside splints, the outer splints being discarded. Motion was more free in the right than the left, but in both it was free and almost painless for about 45° in the middle position. No further dressings of the elbows were made, but the bandages (flannel), became gradually slackened so as to admit of increasing motion. Passive motion was practiced daily.

At the end of the fourth week the dressings were removed from the right elbow, and four days after from the left. He was then allowed to use his arms. Motion at the elbows improved steadily and at the end of the sixth week, motion at the right was nearly perfect, and at the left, improving. The articulation at the elbows is excellent, but there is considerable callous in each—more in the left. The result however, in the left, is better than usually met with after ordinary simple fracture, and under the circumstances, extraordinary.

Gradual improvement is still going on, and now the patient can dress himself, eat, and lift and carry burdens, and perform all necessary functions with either hand. The result of the fractures at the wrist is slightly imperfect so far as appearance goes, but by means of the bandaging, and the enforced rest while under treatment, almost perfect motion has been obtained.

The wound over the eye united by first intention, and the fracture of the nose did well, leaving not only no deformity, but a more perfect nose than before.

Patient had no bed sores. He was discharged March 10th, and is now at work.

(Patient was exhibited and walked without limping, and showed useful motion at elbows and wrists.)

REMARKS.—This case has seemed to me one of much interest, for not only did recovery of the patient from so many serious injuries at first seem extremely doubtful, but the toleration of appliances which for weeks did not permit any movement (the fractured elbows and wrists prevented him from reaching his mouth, and these with the thigh apparatus prevented him from raising, turning or moving), and the final restoration to usefulness, was to me a grateful surprise.

The restoration of the thigh was simply perfect. The quarter inch shortening is only appreciable by the most careful measurement. The bony union is so exact and perfect that the situation of the fracture can scarcely be detected by the most careful handling. The gait is perfect, and in motion and usefulness the thigh is completely restored. In his own words, the patient says: "I know no difference between my two legs."

In the treatment of fracture of the femur, I fully endorse all that Gross says relative to the necessity of having a firm bed; but my idea of a firm bed involves something more than a firm bedstead and firm mattress, for the latter is sure to become so depressed as to tilt the pelvis and endanger the position of the fracture. My experience induces me to believe that, in most subjects, Sayer's doctrine—that these fractures, however oblique, may be treated without shortening, is entirely correct. But it is a nice thing to determine the exact extension required, and it is undoubtedly better to risk a trifle shortening than have a trifle too much extension and fail of getting union.

Accurate measurement is of extreme importance. The mode of measuring from the umbilicus to the inner border of the patella, as recommended by Gross, is certainly faulty, as both these points are moveable, and besides the pelvis may, by a slight and accidental deflection of the spine, be so tilted

as to make a difference in measurement between the points on either side of from one-quarter to one-half inch.

The anterior superior spine of the ilium, and the lower border of the inner malleolus are fixed and convenient points for accurate measurement. My practice is to catch the tape line between the thumb and index finger of each hand, to measure the sound side first, pressing the tape with my thumb-nail up against the lower border of the inner malleolus, then tighten the tape with my other thumb pressed upward and backward against the inferior border of the spine of the ilium, (the thumb-nail looking backward and its edge directed upward), and then without regard to the number of inches, carry the line held taut against the thumb-nails, over to the injured side, here reversing the order—beginning above—pressing the line first against the spine of the ilium exactly as on the other side, and then holding the other end down over the inner malleolus, when the difference in inches is read off—and with greater certainty I think than when the length on each side is noted in inches, for to do this requires removal and re-application of the thumbs, and a lapse of time during which the particular sensation necessary to guide the thumb and tape precisely as before, may be confused or lost.

REPORT ON MEDICAL TOPOGRAPHY, METEOROLOGY, ENDEMICS, ETC.

BY HENRY WORTHINGTON, M. D., CHAIRMAN.

LADIES AND GENTLEMEN OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: Professor Hatch, in his report for 1881–2, has outlined so graphically and in such an interesting way some of the health resorts of California, that I am induced to follow in his footsteps, and continue in a measure a description of some of the desirable localities, in point of climate, in Southern California.

There are insuperable difficulties to the proper presentation of a scientific and accurate topographical report of many of the less popular, because less known, but none the less suitable locations, on account of the meager meteorological records, so that this report will be brief, and somewhat desultory.

Foremost among the places of resort for invalids, and perhaps more popular than any other in Los Angeles County, because of its climate, its cultivated surroundings, and its many social advantages, may be mentioned Pasadena. As an interior valley it has none of the objectionable features that obtain in similarly situated localities. It neither has to any great extent harsh winds and fogs, nor the heated atmosphere of most interior valleys. In fact, surrounded and protected as it is by high hills, the climate is peculiarly soft and mild, and especially adapted to the consumptive and a great major-

ity of cases of asthma and other complaints. The altitude, too, is agreeable. At Pasadena proper the elevation is about eight hundred feet above the sea level, gradually ascending towards the base of the mountains until two thousand feet is reached, which is quite above the frost-line and well out of the fog. The thermometrical range is singularly free from sudden and great changes. The mean temperature for each month during the year 1883 was for January, 56.1°; in February, 55.6°; in March, 57°; in April, 58.9°; in May, 62°; in June, 65.8°; in July, 71.6°; in August, 69.4°; in September, 61.8°; in October, 60°; in November, 54.7°; and in December, 57.9°. The annual mean of humidity was sixty-four per cent.

In the high lands above Pasadena the nights are warm and dry, in one place at an altitude of eighteen hundred feet the average midnight range having been 50.4°. On account of the many comfortable hotels and boarding houses, and its accessibility, the Pasadena region is a desirable resort for invalids, and as possessing a climate suitable for consumptives, it has attained a widespread and well merited reputation.

Northwest of Pasadena, some ten miles from Los Angeles, lies a picturesque hill country, called the Verdugo. A long, narrow valley, on all sides high hills, a succession of smaller valleys scattered among the hills, covered with oak and balsamic shrubs, describes the Verdugo region. The scenery is wild and picturesque, the drives romantic, and a variety of game offers many attractions to the sportsman. The altitude runs from one thousand to twenty-five hundred feet. The climate is singularly free from abrupt changes, the winds are never unpleasantly violent, and the air is exceptionally dry—almost aseptic. The mean temperature, at an elevation of two thousand feet, during the year 1883, was 63.9°, and at an elevation of one thousand feet (Mayo's), 62°. The highest tem-

perature, July 6th, was 90°; the lowest, December 10th, 40.6°. The humidity was not observed.

I have no hesitation in predicting that the Verdugo will become one of the most popular of health resorts, combining as it does a climate unsurpassed for equability, warmth, and dryness, and comprising a region at once fertile, well watered, and abounding in scenery wild and picturesque.

San Gabriel Valley is so well known and so long a popular resort of the invalid and the tourist, it seems unnecessary to attempt any description of its climate and topography. In fact, a number of climates are to be found here, dependent upon local causes—topography, exposure, altitude. Another well marked feature in this region, known as the "fruit and the thermal belt," greatly increases its adaptability as a residence for invalids.

The Sierra Madre Villa has been sketched so pleasantly and accurately by Professor Hatch, that I cannot enlarge upon his description.

All along this foothill country the climate is suitable for invalids of the phthisical type.

The Duarte is about eighteen miles northeast of Los Angeles. It is situated along the base of the San Gabriel Mountains, at an average altitude of fifteen hundred feet. It is also in the "fruit belt." The climate is especially mild in Winter, and having a southwestern exposure, is pleasantly cool in Summer. The average temperature during the past year was 62.7°. The nights are remarkably dry and warm, and the mid-day heat is tempered by the brisk sea breezes, which are grateful and exhilarating.

Pomona, situated lower in the valley, some thirty miles from Los Angeles, has not the same climatic advantages as locations higher up towards the base of the mountains; but there is a peculiar softness about the air that is highly spoken

of by resident invalids. The nights are chilly and damp, but during the day the air is warm and mild. The temperature, as taken by a gentleman resident near Pomona, for 1883, was as follows: For January, 55°; in February, 54.8°; in March, 56°; in April, 57°; in May, 60.1°; in June, 56°; in July, 70°; in August, 69.6°; in September, 62°; in October, 60°; in November, 53°; and in December, 58.9°. The humidity was not taken, but would be a most interesting record in this region.

Cucamonga, and the new settlement called Ontario, situated nearer the mountains, has a remarkable climate, by reason of its dryness, but being more exposed to the winds which prevail during the Summer, the location is to some disagreeable; and possibly the rather violent sand storms, although not frequent, are an unpleasant if not serious drawback to a resort for consumptives.

Further up the mountain lies the San Antonio Canyon, so situated as to be well protected from harsh winds, and latterly a very popular resort of large numbers of invalids. The location is singularly adapted to those who prefer camp life, for the picturesque surroundings and the wild scenery, combined with its accessibility, offer great attractions to the camper-out. Indeed, camp life is an essential element in the successful and substantial benefit to be derived by a residence in this climate.

In the neighborhood of the historic town of San Bernardino, there are many beautiful and suitably located places of resort for the invalid, and the climate towards the foothills and high up in the mountain canyons is particularly adapted to patients with pulmonary complaints. These localities are not affected by the ocean winds to any extent, and the climate is fully as mild and dry, and perhaps more equable, than any other climate in Southern California. Added to this is the

undoubted fact that at an altitude of two thousand to three thousand feet, there are no fogs—a desideratum deserving of special mention. At one place, situated twenty-one hundred feet above San Bernardino, I was assured that neither fog nor frost had ever been observed there during a residence of some sixteen years of the present proprietor. During the four months—January, February, March, and April, 1883—the mean temperature for January was 42°; for February, 40.9°; for March, 46°; and for April, 50°. The highest temperature in 1877 was in July, 88°, and the lowest was in December, 38.6°.

Nearly all the mountain canyons abound in game and fish, and the water is deliciously cool and pure. Unfortunately, this region is more or less inaccessible, although yearly more resorted to by invalids and others who can stand being jolted over rather rough roads.

Riverside is so well known, and the climate, among other attractions, has such a well deserved reputation that it seems quite unnecessary to linger in this delightful region.

Beyond Riverside, to the west, lies a picturesque valley, called Temescal. The valley is protected by the Temescal range on the west, and by the Tin Mine Hills on the east. The altitude is about 1,500 feet, and the climate is exceedingly agreeable. The days are cool and exhilarating, and the night air exceptionally dry and balmy. The mountain sides are covered with balsamic shrubs and pines, and the valley itself contains forests of oak and sycamore, affording most pleasant and picturesque camping-grounds, and all the accompaniments of an out-door life the year round. In cases of general debility, in nervous disorders, in asthma and pulmonary troubles is this climate especially suitable. During the past ten years the writer has sent many phthisical patients to this valley, with the greatest benefit to all, some of whom

have returned well nigh, if not actually cured. The Temescal House, a comfortable and commodious hotel, is situated at the base of the mountains and overlooks the entire valley. There are some warm springs here also, the waters of which have a temperature of 98° Farh., are alkaline in reaction, and contain sulphur and iron. Not a few rheumatics and persons with skin affections resort here annually.

The mean temperature for 1881, at Temescal, was 63°. Farther south, some fifteen miles from Temescal, lies the "lake region of San Diego County." The Big Laguna, or, as it is now called, "Elsinore," is a long plain, in the midst of which is a lake about five miles in length by one mile wide. The water is fresh, although when the lake becomes low it has a brackish taste. The climate is dry and warm, and in the summer the winds are disagreeable and sometimes blow down the valley furiously during three or four hours of the day.

On account of the picturesque beauty of the locality, the abundance of game and the exceeding dryness of the air, many people resort here every year for recreation and health. There are also some hot springs near the southern end of the lake which are spoken of highly by those who have tried them. They are mostly sulphurous, are alkaline in reaction and have a temperature of 110° Fahr.

Temecula, some fifteen miles from Elsinore, is a long, fertile valley, some 1200 feet above the sea, surrounded by chains of mountains, and the view of which is indescribably grand. The climate is distinguished by its being exceptionally bracing and dry, and although colder in Winter than the coast regions, it is also more stimulating. It is suitable for nervous, weakly patients, for many asthmatics, and in certain forms of pulmonary disease, a most admirable locality. The writer met several persons who had been sufferers from

asthma, and who, while residing in the valley, had entire immunity from the effects of this hydra-headed monster. The following meteorological record was kept by the writer from July, 1881, to July, 1882: Mean daily range in July, 1881, 10.42°; in August, 10.71°; in September, 10°; in October, 9.02° in November, 10°; in December, 11.60°; in January, 1882, 9.72°; in February, 8.85°; in March, 9.10°; in April, 10°; in May, 11.10°; in June, 8°. The relative humidity for the months of July, August, September, October, November and December, 1881, was respectively, forty-two per cent, forty, thirty-four, thirty-six, thirty-four, thirty-two; and for the months of February, March and April, 1882, respectively sixty-one per cent, sixty-two, and fifty-one.

Strong west and southwest winds prevail during the Summer heats, but to most people they are not objectionable.

Near Temecula, four miles from the station of the California Southern Railroad, are situated the "Aguas Calientas," hot springs, which have had for over a century a wide reputation. They are among the foothills, and remarkably well protected from strong winds, and the air is so still that out-of-door bathing may be indulged in without danger of taking cold, most of the year. The water is highly impregnated with sulphur, and issues from the ground at a temperature of 144° Farh.

There are many places that might be mentioned as being suitably located, not only in this region, but also throughout San Diego County, but it will be impossible within the limits of this article to go further.

I cannot conclude these notes, however, without making a brief reference to the almost unknown, but none the less interesting "pine regions" of Southern California. All along the eastern and northern exposures of the San Bernardino, San Jacinto and Smith's mountains, pineries are found.

[illegible] feet and upwards. [illegible] mountains where the [illegible] feet [illegible] [illegible]

REPORT ON INDIGENOUS BOTANY.

BY W. P. GIBBONS, M. D., OF ALAMEDA, CHAIRMAN.

The report on Medical Botany is necessarily imperfect, owing to difficulties which may be surmounted on future occasions.

Attention will be directed to the following named plants, accompanied with specimens:

SERPENTARIA, U. S.

Aristolochia, Tourn. Pipe Vine, a name derived from two Greek words, signifying *excellent*, and *a female in childbirth.* From the plant being formerly considered to aid the expulsion of the placenta and to promote the lochial discharge. The plant belongs to the natural order, *Aristolochiaceæ.* The roots and leaves of several species of aristolochia have been used in medicine for over two hundred and fifty years. Several are officinal in the United States Dispensatory. Over one hundred and seventy are distributed over the world. They are mostly woody climbers of small dimensions. The Pacific Coast species, *A. Californica, Torrey*, is perhaps the largest representative of the genus. It is found along the coast from Monterey to Marin County, and in Tuolumne County, eastward. I have seen specimens of it three inches in diameter at the base, with branches running among surrounding trees, from fifty to seventy-five feet in length. There is no essential difference in medical properties, between our species and the *A. Serpentaria* of the Dispensatory, hence it will

be unnecessary to occupy space in repeating its therapeutic history. The California species commends itself to notice on account of the size of its roots when compared with *Serpentaria*. The officinal drug comes to market in small fibrous roots, presenting a marked contrast with our species, which has roots from .25 to 1.5 inch diameter.

NATURAL ORDER COMPOSITÆ.

Artemesia, Linn., Wormwood, Sage Brush. This is a large genus of plants, belonging mostly to northern Asia and Europe. Artemis was one of the names of Diana, Goddess of Chastity. The plant is said to have been named after her, on account of its having been used in bringing on early puberty. Pliny says it was named after Artemesia, Queen of Mausolus, King of Caria.

A. Contra, A. Absinthium, and other species are officinal. The name of the last indicates one of its principal uses. There are eleven species found in California. Though all of them probably have similar properties, only one will here be noticed; *A. Californica, Less.; syn. foliosa* of Nuttall; all the other species are perennial. One section of the genus (*A. Tridentata, Nutt.*), represents the *sage bush* or *sage brush*, which is so extensively diffused over the arid portions of the State, growing from three to six feet high, and in places forming dense chapparals.

Artemesia is one of the oldest members of the pharmacopœia. It was regarded as discutient, aperient, antiseptic, antispasmodic, stomachic, and tonic; it was used as an emmenagogue, and to expel the secundines; it was taken internally, and applied externally. Modern therapeutics does not seem to have added much to the medical range of the plant. Its active principle, *santonin*, is regarded almost as a specific in killing lumbricoides; but it does not expel

them. According to Calloud, it imparts a yellow tint (*xanthopsia*), to objects seen through the vision. It has a slightly narcotic effect on the brain. Martin & Guépin found it advantageous in amaurosis.—U. S. D. It is conceded that further investigations into the merits of artemesia are desirable.

Its proximate principles are volatile oil, succinic acid and santonin, and in *A. Dracunculus*, anethol.

The activity of our California species is undoubted. On and over our foothills, *A. Californica* grows abundantly in patches of low, shrubby masses. The cotton-tailed rabbit has his habitat over hills, cañons and plains. This little animal is infested with a tape worm, recently described by Dr. Harkness. In certain localities where artemesia does not grow, almost every rabbit has one or more of these parasites. I have opened twelve, one after another, and each contained one, and some two of these entozoa. In the vicinity of the artemesia, rabbits are very fond of taking shelter under its thick bushy foliage, and an old hunter assured me that such as were shot in these localities were always free from vermin. This incident alone, if unsupported by any other evidence, indicates the value of our California plant. Among old Spanish residents, different species of artemesia have reputation for remedial virtues. They are especially valued for rheumatism, and used in vapor baths, either steeped in hot water or wrapped in hot cloths, over which hot bricks are laid. The ascending vapor is conducted over the body by wrapping a blanket around the neck.

Belonging to the same Natural Order as the preceding, is *Grindelia*, a genus at present including four California species. More than twelve years ago I read a paper before this Society directing attention to its properties as a remedy in asthma. It has since been extensively tried with varying

success in this disease, and its properties are so far substantiated that it now has a place in the United States Dispensatory; yet the profession, in California, at least, is not fully satisfied that it is entitled to a primary rank as a therapeutic agent. It has failed in the practice of many of our best physicians. Dr. Tyrrell, of Sacramento, has recently written to me that he has "used it without deriving that benefit which I had expected; but as I used fluid extract, as prepared by the apothecary, perhaps the mode of exhibiting it was not calculated to obtain the best effects of the drug."

These failures are in singular contrast with the marked success of cases which have come under my care. I have now been using it steadily for more than fourteen years, with confidence in results. There is no doubt that this discrepancy of action may be partially attributed to the mode of preparing the drug. I have not had an opportunity of having the analysis completed, and of testing the products physiologically and therapeutically. Here is a specimen of the ether extract, another of the alcoholic extract, and a third of the aqueous extract, yielded by the residuum after being exhausted by alcohol and ether. It will be observed that the aqueous extract yields in bulk and weight a greater product than the others. I am not warranted in saying in which of these, or in how many, the active principle is contained; but so long as this problem remains unsolved, so long will uncertainty follow the use of the different formulæ. I have uniformly used an infusion of the leaves and flowers. A small quantity of borate of soda facilitates the solution of the oleoresins. It will be found advantageous in many cases to add bromide of ammonia to the infusion. The following formula may be taken as a standard preparation:

Grindelia, zjv,
Sodæ boras, zj,
Aq. bull., Oj.

Put in a covered vessel and macerate for two hours.

This infusion will not keep for any length of time. The dose is half an ounce every five minutes, till nausea or emesis is produced; then continued at longer intervals until permanent relief is obtained. Some cases may require a pint of the infusion, or even more, before the spasm is arrested. When the attack is induced by acute bronchitis or pulmonary catarrh, no good results will follow this treatment. As a preliminary measure in such cases, five grains of calomel, divided in half-grain doses, and given every five minutes, followed in half an hour by an emetic of tartarized antimony, and its action kept up until the mucous rale disappears, will prepare the system for the grindelia. Should it be argued that the calomel and antimony effect the cure before the grindelia is administered, I have only to say, that this is not in accordance with my experience. They may produce a temporary alleviation of spasms, but no cure will be effected. The following cases illustrate the foregoing principles:

1. James B., æt. 40; spare habit and good general health; had been subject to severe attacks of asthma for several years, which would recur every two or three months. Was called to him at 2 A. M.; he had an unusually severe attack; great difficulty of respiration; gave five grains of calomel, followed by an emetic. He insisted on my remaining with him for three hours. He threw up considerable mucous, but was not relieved of the spasm. At 8 A. M. commenced giving infusion of grindelia, half an ounce every five minutes. In one hour the spasm abated. I left him a pint bottle of the infusion, which he used in the course of a week. He said he was

perfectly cured. Did not see him again for two years. He had been entirely free from the disease in the interval.

2. George C., æt. 35, feeble and emaciated; severe attack of asthma every time he was exposed to currents of air; had been out of health for several years; now in an advanced stage of phthisis. Occasionally the spasms were relieved by grindelia: died in two years after he came under my notice.

3. Edward B., æt. 14, stout, healthy boy; subject to severe attacks of spasmodic asthma every two or three months. The usual doses of infusion relieved him in two hours. Had a return of the disease two months after, and was relieved in a few hours without any other treatment. No recurrence for five years.

4. James G., æt 35, a miner; every Autumn for years past had a severe attack of asthma. Came to my office to be examined; no complication discovered; felt moderately well at the time, and concluded to undergo no treatment. A few days after was called to him at 1 A. M. On entering his room he said he was dying; that he never had such a severe attack, and only wished to be let off easy. Knowing his case beforehand, I had taken some grindelia with me. Began half-ounce doses every five minutes. In half an hour he vomited considerable thick mucous; in one hour the spasm abated and he was breathing comfortably. In two hours I left him, apparently well. Next morning he walked into his garden; a relapse occurred. He was kept in bed for a week, and got up perfectly well. This was six years ago, and he has had no attack since.

5. Charlotte E., æt. 20; from childhood has been delicate and subject to asthma. Her parents removed from San Francisco to Alameda, by the advice of her physician, seven years ago. Change of locality did no permanent benefit. Came under my charge two years ago, suffering from a severe

paroxysm of asthma, induced by a recent attack of bronchitis. She had also emphysema of the lungs. Calomel and emetic, followed by grindelia in the usual doses; relieved in two days. Has had three severe attacks since, all induced by bronchitis, incident to exposure. Her case is materially improved, and she has no paroxysms, except after taking cold.

6. Edward T., æt. 18, robust and healthy; subject to severe attacks every month or so for years past, ordinary treatment being of no avail. Six months ago had a spasmodic paroxysm; gave him grindelia in the ordinary doses. He was relieved in one hour, and was exempt from the disease for three months, when another occurred as a sequence of pulmonary catarrh; gave him calomel and an emetic, followed by grindelia; somewhat relieved, but the asthma continued for twenty-four hours. He was at his sister's residence, a mile away from home. I had him removed, and almost immediately he began to improve. He was well in twenty-four hours more, since which time (three months) he has had no other attack.

These cases include typical forms of this disease, such as are of common occurrence. The fact that such uncertain results have followed the administration of this drug, is not evidence of its being unreliable, but rather that its pharmaceutical preparations are either inert or contain uncertain proportions of its active principle.

With the view of obtaining information on this point, I called at one of the extensive drug stores in this city, which manufactures fluid extracts. Neither of the principals being in, I was referred to a leading employe and informed, in answer to queries, that their fluid extract was prepared with dilute alcohol—that they sold immense quantities of it—that it was nothing to them whether it cured, or did not cure asthma—that their object was to make a saleable article, and

[illegible] they were perfectly satisfied, an[illegible] [illegible] Now if some druggis[illegible] [illegible] energies more in the channe[illegible] [illegible] of therapeutic value, an[illegible] [illegible] of [illegible] [illegible]

body of physicians, in establishing the physiological and therapeutical action of products.

To meet these requirements, I respectfully suggest to this Society, the propriety of making application to the next Legislature, for a small appropriation--not exceeding $4,000 in two years—to pay the expenses of the Professor of Chemistry in the State University, in making complete analyses of plants and mineral waters of the State, under the direction of the Medical Society of the State of California, and to pass over the results of the analysis to said Society for experimental purposes.

Surely, if the Legislature can afford to appropriate ten times this amount to horse-racing and collateral gambling operations, it can do a little to promote the health of its State jockeys and save their valuable horses from loco and other poisonous plants.

REPORT OF THE COMMITTEE ON HYGIENE.

State Boards of Health and the Medical Profession.

BY F. W. HATCH, M. D.

MR. PRESIDENT, AND MEMBERS OF THE SOCIETY: Among the radical advances which have been brought about in public sentiment during the past twenty years, as well in theory as in the practical results arising therefrom, none have been more clearly pronounced, or have taken a firmer hold upon the community, than that witnessed in the gradual but widespread recognition of the utility of measures for the prevention of disease. This has not been confined to any one class of society or any single profession. It pervades all classes; it has interwoven itself in the popular mind as a settled conviction. It has become ingrafted in the current literature of the day, and has come to be regarded as an interesting problem in popular science.

That many of the diseases which afflict mankind are preventable, is a maxim as old as Hippocrates himself, and understood by every physician since his day. It is a truth, the natural and irresistible result of the study of disease and its causes. But, although the intelligent and conscientious physician has probably always, on all proper occasions in the course of his professional intercourse with those intrusted to his care, given due warning and instruction as to the principles by which disease may be avoided, it is nevertheless true that his office has been to deal rather with the cure than

the prevention of sickness. It is only within comparatively recent years that these two offices have been assigned their true relation, and the medical adviser of a family has come to recognize not only the duty of prescribing the appropriate remedy for present disease, but that the highest achievements of medical skill are to be attained by the discovery of the causes by which disease may be induced and its ravages avoided. In the interest of this important subject the literature of the profession is being enriched day by day. The researches of Pasteur, of Koch, Klein, and others have thrown a flood of light upon the etiological history of many diseases, opening up a field of labor in which the proudest triumphs of medical science are to be accomplished.

It is not the purpose of this report, however, to enter upon a review of the laborious investigations by which the germ theory of disease has been sought to be established, or to speculate upon its ultimate influence upon the prevention and prophylactic treatment of disease. It is alluded to rather with the view of illustrating the general tendency of medical study—that active spirit of inquiry which seeks to search out the causes of the so-called infectious diseases with reference more to their prevention than their cure. God speed the day when the veil which has so long obscured this subject may be lifted, and it shall be the glory of the medical profession to do for yellow fever, cholera, and other epidemic diseases—and, may I not also add of tuberculosis?—that which Jenner, a century ago, achieved for varioloid!

The tendency of the age towards investigation into the preventable causes of disease is yet further shown by the numerous publications which have recently appeared upon the various subjects embraced in sanitary studies. Some of these are designed for medical instruction and to awaken an interest among the profession in matters which, it is assumed,

with doubtless much truth, have too little occupied professional attention, but many of them for popular reading, to spread among the people a general knowledge of the common causes of disease and the means by which they may be avoided, to point out to them the various insanitary conditions so universally prevalent, the methods by which they may be corrected, and the danger attending their neglect. I believe that much real good has resulted from these publications; that a spirit of inquiry has been aroused; that conviction has taken the place of doubt in the minds of many who were disposed to cavil at sanitary rules and restrictions, and that a more ready acquiescence is generally manifested than formerly in the regulations adopted for the hygienic improvement of our cities.

The establishment of Boards of Health has been one of the fruits of this increasing intelligence among the people, the best possible evidence of popular appreciation of the important purposes they are designed to fulfill; and these, in turn, by intelligent and well-directed efforts to improve the sanitary condition of towns and cities, and by other practical demonstrations of their utility, have served to keep alive in the public mind a recognition of the truth, that to preserve health the causes of disease are to be avoided.

The first noteworthy step in this direction, one which marked the commencement of a new era in sanitary work, was the creation by the Legislature of Massachusetts of a State Board of Health, in 1869. This was, in fact, the "first permanent body" in the United States, "appointed by State authority for the purpose of investigating the causes of disease, and for warning the people in relation thereto." It was accomplished by coöperation between the laity and the profession, but mainly by the energetic action of the former; "for," as stated by Dr. Bowditch, "the laity, through its

legislative and executive officials, vastly more than the profession in its limited sphere of action, must sustain all efforts for the thorough and systematic study of the causes of disease."

An example having so much to commend it to the judgment of all reflecting citizens in and without the profession, could not long fail to have its influence upon the conduct of other States. In the following year—1870—a response was heard from the District of Columbia, through the action of the National Congress; one year later—1871—California and Virginia fell into line; and since then, under the stimulus of a healthy public sentiment, thirty-four States have been added to the list, making a total of thirty-eight State Governments enlisted, under varying and more or less effective statutes, in the great work of public sanitation—laboring under many obstacles, with small means, and sometimes, unhappily, with opposition even from those whose support they had a right to expect, yet with hopeful energy, to perfect and promote the scheme of Preventive Medicine.

Of the benefits resulting from these organizations it is perhaps too soon to form a proper estimate. The work of social reform is always slow. To break in upon old established habits, to uproot settled customs, to convince the great mass of the people that the habits which their fathers followed and in which they had lived perhaps to a ripe old age, were fraught with danger, is one of the most difficult tasks the sanitarian has to accomplish. Even the oldest of these State Boards is yet too young to witness the full fruition of its labors. Yet are they surely, gradually developing in power and influence, and perhaps before the beginning of another century dawns upon the world they will challenge the admiration of those who now most doubt their utiility.

Several circumstances have concurred, if not indeed to weaken the influence of these Boards of Health, at least to

obscure or to make it less appreciable at this time. One of these is the want of a really perfect system of registration, covering a sufficient number of years to form a reliable basis for calculation. "I was desirous of learning," says Dr. Bowditch, in his Centennial Address, "whether we had proof, from reliable statistics, that a man lives longer now than he did a century ago. This I believed to be true, if we may judge from past history, wherefrom it seems that the duration of life has steadily heen augmenting with advancing civilization. To get accurate data, I consulted some noted experts in the community, but I have not been able to get satisfactory replies. Not one of them could refer me to printed vital statistics *proving the fact* for these United States." Yet Massachusetts began the work of registration in 1843; Connecticut in 1845; Vermont in 1857.

In Rhode Island, whose registration system has been considered one of the best, the statistics of ten years—1872 to 1881—show the annual death-rate for the first half of the period to have been 17.7, and for the latter half, 17.2 per one thousand of population. The Registration Act for this State dates from 1853.

But, little practical information can be gained from such partial statistical calculations.

Then, again, the population has been continually changing. The tendency has been towards aggregation in towns and cities, with the usual effect of density of population upon the death-rate. In Massachusetts, while only 6.7 of the population dwelt in towns containing ten thousand or more inhabitants, in 1800, such towns contained 48.7 of the total population in 1870. The same general fact is observed, yet not perhaps sustainable by statistical records, of other States in which Health Boards have been organized, and has been commented upon by the Registrar General (England) in his thir-

ty-fourth Annual Report. "In the last thirty years," says Dr. Farr, "the towns of England have increased from five hundred and eighty to nine hundred and thirty-eight; the population from nine to fourteen millions;" and, while this fact tended to prevent the actual demonstration of how much good had been done by the earnest labors of the sanitarians, or to what extent disease had been averted, he adds: "The health of the whole population has remained stationary."—*Buck's Hygiene.*

Then, again, we have the opposing influence of *heredity*, tending to maintain the death-rate from certain diseases, and to shorten the term of human life. Is it too much to believe that State Preventive Medicine will eventually triumph even over this?

Yet, notwithstanding these circumstances, which, with others, render it difficult to put a true value upon sanitary work, especially in the United States, it is impossible to believe that great and substantial benefits have not already resulted.

One of the most important offices of the State Board of Health is to disseminate information among the people. This has been liberally done by tracts upon various subjects, widely distributed—tracts upon the prevention and hygienic management of contagious and infectious diseases, such as scarlet fever, measles, small-pox, cholera, and diphtheria; the management of infants; the resuscitation of the drowned, *et cetera.* Believing that very many of the diseases which occur are due to prevalent insanitary conditions, to defective drainage and sewerage, to crowded and unventilated tenement houses, to uncleanliness in cities and even at our very doors, and to the common factors of polluted air, soil, and water, a warning voice has been lifted up, now radiating from the capitals of thirty-eight States, depicting their evils, and teaching how

they may be avoided. It is impossible that works of this character should not have produced good results, which, though now inappreciable in their effect upon large masses of population, will ultimately be demonstrated by the admitted diminution of human suffering and the prolongation of the term of human life.

We may form some conception of what may in time be expected from the efforts alluded to, from what may be shown to have been effected in England.

A century ago, the death-rate of London was eighty per 1,000 of its population; now it is *twenty-three* per 1,000, and by some, set down at only twenty per 1,000. Dr. Buchanan has shown that the mean death-rate in twelve towns in England was reduced from an average of 25.6 per 1,000 for many years before the introduction and enforcement of stringent sanitary measures, such as drainage and sewerage to 21.7 per 1,000 after their introduction, and that the diminution of the mortality by typhoid fever alone was not less than 47.6 per cent. An equally gratifying reduction was effected in the death-rate of consumption.

Commenting upon these records, Mr. John Simon remarks that they "serve to contute persons who despaired, or affected to despair, of any great preventability of disease; but still more to justify in the public eye, and to encourage in some of the noblest of human labors, those who for many long years have been spending their powers in this endeavor, and to whom it will be the best of rewards to see demonstrations of the good they have wrought."—*Buck's Hygiene.*

The Registrar-General of England, in his last annual report—1881—adds testimony to this effect: "There is nothing in the series of annual reports issued by this office that comes out more distinctly and unmistakably than the wonderful effects which the sanitary operations

of the last decade have had in saving life. The death-rate for this year, in England was 18.9 per 1,000 living. The death-rate in the urban population, consisting of some fifteen and a half million persons, was 20.3, while that of the rural population, comprising some ten and a half million of persons, was 16.8. Comparing the years 1862-71 with those of 1872-81, the deaths in the latter were so much less in proportion that 392,749 persons who, under the old regime, would have died, were as a matter of fact, still living at the close of 1881. Add to these saved lives the avoidance of at least four times as many attacks of non-fatal illness, and we have the total profits as yet received from sanitary expenditure." The Registrar further states, that the average annual death-rate for 1862-71 had been 22.6, "and there were no indications whatsoever of any tendency of the rate to fall lower. Indeed in 1871, the final year of this period, the rate was exactly the average, viz: 22.6. The act came into force, and at once the rate began to fall, and continued to fall year by year with almost unbroken regularity, until in 1881 it was, as above stated, no more than 18.9."—*Seventh Report, State Board of Health, New Jersey.*

Of the part performed by the State Board of Health of California in the general reformatory movement, it does not become me to speak. The future will determine. But it is not out of place to suggest that however faithfully and actively that Board may exert itself, it will fall far short of its most important and needful purposes unless sustained by the coöperation of the medical profession at large.

This coöperation is needed:

First—In the establishment and maintenance of *local* Boards of Health. It requires no argument to show that no really effective sanitary work can be performed, no satis-

factory progress made without the aid of local auxillary boards in different parts of the State to whom the various questions and measures which affect the health interests of communities may be intrusted, who shall devise and direct the methods for the sanitation of towns, for securing cleanliness, providing for drainage, initiate plans for sewerage, and enforce the proper means for the prevention or arrest of epidemic, contagious, or infectious diseases within their several jurisdictions. How much may be accomplished, in the latter direction especially, by timely and judicious action, by organized effort, upon the first appearance of a contagious disease in every community, every intelligent physician well knows. The bulletins of the State Board of Health for the past four years and the published literature of the profession afford many striking examples.

There is probably, no city or town of which it can be said that no sanitary supervision is needed, or where cleanliness and other hygienic conditions are unexceptionable. Go into the alleys of even our best cities, and the rear yards of some of their most conspicuous and elegant residences, and the careful observer will frequently discover much needed work for the officer of health. The State Board may issue its tracts and distribute them broadcast over the land, but unless its efforts are seconded by local authority, unless attention is directed to the subject by the local profession and enforced by the mystical authority, which the medical adviser of a family may always wield, they will, as a rule, avail but little. These tracts may or may not be read; or if read are soon buried in oblivion.

There is no more powerful or efficient stimulus to human action than fear, and though general alarm in the actual or threatened presence of an epidemic is not to be encouraged, but rather to be deprecated, a true appreciation of the im-

portance of rational methods of prevention and a proper apprehension of the danger of neglecting them, are to be promoted. Men will act in self-defense when no other motive will prompt them. It is the main-spring of sanitary work everywhere, and if with a reasonable fear of epidemic disease there could be conveyed an equally reasonable confidence in the preventive measures advised, nothing but good could result.

In the presence of smallpox the community will eagerly resort to vaccination in the assured belief in its efficacy. If the same community could be impressed with the truth that scarlet fever, against which no prophylactic has yet been discovered, is, for this reason, more to be dreaded than smallpox, and yearly claims vastly more victims, possibly they would more generally listen to the advice which Preventive Medicine gives, and which, rigidly adopted, would be almost equally efficacious—to compel its prompt and certain *isolation.* On the expected approach of an epidemic, an active Board of Health, sustained by the medical profession, can gain the consent of the public to the most extreme measures; purse-strings, usually tightly drawn, will be freely loosened.

Second—The coöperation of the medical profession is needed in obtaining for this State, and making effective, a suitable system of registration of deaths, births, and marriages, as well as for zymotic diseases—in other words, in enabling us to arrive at a knowledge of the vital statistics of California. The law now in force seeking to attain this object is simple and easy of execution, if only it were obeyed by those to whom duties are assigned under its provisions. It differs from some other registration laws in that the duty of furnishing the necessary data is imposed upon the Recorder of the several counties, and upon the physicians, midwives, and clergymen or judicial officers

who are called upon to attend the sick on the one hand, or officiate in the solemnization of marriages, on the other. That it has been inoperative is due to the fact that it has been generally disregarded by each and all of the parties required to give the needed information. The Recorders, with a few exceptions, have failed to distribute the blanks supplied them, and the physicians and others have failed, it is complained by those county officers who have shown a disposition to do their share in the work assigned them, to report the facts. Hence the reports received from the few counties responding, have been too few, and the information they contained too meagre to justify the attempt to make them available for statistical purposes.

There are defects in the law. One of these is the obvious impropriety, it seems to me, of requiring physicians to give their services to the State, even for the useful purposes of registration, without some remuneration therefor; and although the amount which could reasonably be expected for each birth or death would be small, or even insignificant in itself, there is a principle at stake which ought to be recognized. The attention of the Legislature has been called to this subject, but, as yet, without avail.

In the absence, then, of registration, and in view of the neglect just now shown of so many towns to establish and maintain a local Board of Health, the State Board has gladly availed itself of the services of volunteers in a number of towns by whom reports of deaths are kindly forwarded. These reports have subserved a practically useful purpose. They have afforded information of the deaths in nearly thirty towns, and in many instances, the prevalent diseases; and if they could be extended to every section of the State, and *regularly* made, they would practically supplement the deficiencies of the registration law, and enable us to make an intelligent sanitary survey of

the State—to map out the relation of its several parts to special diseases, and properly estimate the influence of localities. In no other way, under present circumstances, can the effect of our climate be satisfactorily shown.

Reports of this kind, must, however, generally be inferior in some important respects, to those which a strictly enforced and comprehensive registration system would be able to supply. They make no mention of the births and marriages—essential elements in vital statistics; they give only imperfect data respecting the influence of the foreign population upon the death-rate—especially of consumption, though there is here presented an interesting subject for the statistician. In Boston, in 1855, of all the decedents by that disease, over fifty per cent. were natives of Ireland; in the City of San Francisco, for the year ending June 30th, 1883, of 863 deaths by phthisis, 577 were of foreign birth—more than sixty-six per cent.

The infant mortality of the State, its rate and causes, are also important considerations which can be satisfactorily studied only by a registration system covering the entire State; yet they intimately concern the prosperity of the State—reflecting to a greater or less extent, the sanitary or insanitary influences which prevail. Precise information upon this subject is especially of value in its relation to preventive medicine, for surely a very large proportion of the deaths among infants are from causes admitted to be preventable, due to plain violations of hygienic laws.

The profession can render valuable aid by impressing upon legislators the importance of registration, and urging much needed amendments to the law. but, until this can be accomplished, volunteer reports from all parts of the State will prove an invaluable substitute. They are indispensable in

in towns having no Boards of Health, or where, these having been established, the clerk neglects his duty under the law.

Gentlemen of the Medical Profession: will you extend to the State Board of Health this coöperation, by awakening an interest in the subject of sanitation in the towns or districts of whose sanitary interests you are recognized guides and monitors, by urging the creation of local Boards of Health, by impressing upon the legislators from your districts the importance of remodeling the Registration Law and of other legislation tending to promote the public health and by voluntary reports of deaths and diseases, at least from zymotic or preventable causes, within your several jurisdictions?

REPORT ON MENTAL DISEASES AND MEDICAL JURISPRUDENCE.

DIPSOMANIA AND THE NECESSITY FOR LEGISLATIVE ACTION FOR ITS CONTROL IN CALIFORNIA.

BY G. L. SIMMONS, M. D., CHAIRMAN.

In offering a short report upon a department of mental disease for the consideration of the State Medical Society, the chairman of the committee desires to state that when he accepted the position he hoped to have been able to present the substance of a paper which was partly prepared last year by Dr. G. A. Shurtleff, of the Stockton Insane Asylum, and which ill health prevented that gentleman from finishing in time for the annual session of 1883. Unfortunately for our Society the doctor writes to me, that, "under the inconveniences and privations of his still impaired health he cannot arrange his notes for the Proceedings of this year." In the absence of this expected aid from a specialist in Mental Science, I will call your attention to a branch of mental disease which often falls under the notice of the family practitioner, and the great necessity which exists for Legislative interference for its control in our State.

Ever since unsoundness of mind has been made a subject of medical thought, the abuse of alcohol has been recognized as a cause of some of the most serious forms of in-

sanity, but it was not until 1817, when Salvatori of Moscow, published his article upon oinomania, that the milder type of mental disease soon afterwards called dipsomania was described. Salvatori claimed that "the malady which had been banished from nosology was a special disease with well marked symptoms, requiring for its treatment restraint and special management." At first his views were considered peculiar and unworthy of serious attention, but slowly they have been accepted by the profession, and for the last twenty years the discussions upon the subject of inebriety have become so general that the literature is swelled into volumes. In our own country a national association for the cure of inebriates is in successful operation. This body is composed of men who are making a special study of this branch of mental disease, and it publishes a "Quarterly Journal" which contains the most advanced thought upon this important question. While most of our own, with continental authorities, recognize dipsomania as a disease, a few English alienists have raised some doubts in regard to the exact nature of periodical drunkenness and have argued that it is a vice which should be restrained by the ordinary means of legal punishment. By far the larger proportion of men devoted to mental science, however, claim in the language of one of the most eminent, that "dipsomania is a true disease accompanied by an irresistible propensity for alcoholic drinks, and which utterly annihilates self-respect, and the power of self-regulation, and is indicative of an affection of the brain, in other words, an abnormal cerebral condition occasioning unsoundness of mind." The earnest discussions upon the duty of the government to provide legal restraint for dipsomaniacs which engaged public attention in England for over ten years, and which effected the passage of the "Habitual Drunkards' Bill" by Parliament in 1879, developed the views

of the leading alienists in Great Britain, and elicited a fund of important information in regard to the evils which have resulted from neglecting a large class of men, who, in the language of a leading Commissioner in Lunacy in Scotland, "possess an ungovernable but remitting craving for drink without reference to external circumstances, accompanied by a change of character, loss of sense of duty, honor and affection." In speaking of the differences between intemperance the vice, and intemperance the disease, Browne mentions the one as brought about by a *vis a fronte* and the other by a *vis a tergo*. Mould says: "Intemperance as a vice is the result of a vicious and immoral habit, while intemperance the disease is attributable to an impulse which the patient cannot control, being recognized as a special form of insanity, a real mental disorder and moral obliquity, without the controlling power of the brain centers to guide the conduct."

Dr. Clouston, one of the editors of the *Journal of Mental Science*, in discussing this question with Dr. Bucknill, asks: "Can any medico-phsychologist say that the inhibitory power of the dipsomaniac over his desires and cravings is as great as that of the average sane man, or that these desires and cravings are not morbid and abnormal both in their strength and duration? Is not the utter and blind disregard of consequences itself a sign of disease analagous to the madman's conduct? Is not the loss of inhibitory power over the appetites as great in these cases as over the muscles in chronic alcoholism, and from the same cause, viz.: weakening of the controlling power of the higher brain centers by alcoholic poisoning?"

Forbes Winslow, in his well known article upon "Uncontrollable Drunkenness Considered as a Form of Mental Disease," says: "In these cases the morbid craving for physical

stimuli of all kinds is uninfluenced by any motives that can be addressed to the intellect, heart, or conscience. Self interest, self esteem, friendship, love, religion, morality, are appealed to in vain. The passion for intoxicating drinks paralyzes the will and obtains a complete mastery over the understanding and moral sense, making every other emotion of the soul subservient to its base and demoralizing influences."

Bucknill and Tuke place dipsomania as a form of mental disorder, which in an especial manner requires to be driscriminated from what may be termed a merely physiological condition in which the human animal chooses to indulge in alcoholic beverages to excess.

It will be observed that the recognition of dipsomania is easy, when we remember that its victims are attacked periodically, and have no power to resist the appetite for strong drink, while those affected by delirium tremens, mania a potu, or habitual drunkenness, have the ability to abstain whenever they choose to do so.

ITS PREVALENCE IN CALIFORNIA.

While the statistics of our insane asylums present the per cent. of cases of insanity resulting from the abuse of alcoholic drinks, general practitioners know that a still larger number of these sad cases of mental disease are met with in private practice, whose histories are never recorded for the public eye, and whose melancholy statistics are locked under the seal of professional honor. Unless the craving for drink is associated with some other form of mental weakness which can be made prominent in a lunacy certificate, our alienists or Courts are never called upon to take charge of these cases. While it is impossible, therefore, from the nature of the circumstances that surround these private patients, to say to

how great an extent they exist in California, it will, I think, be admitted by nearly every member of our Society, that the disease prevails to an alarming degree, and that there are few physicians in family practice who are not regularly cognizant of cases where the brightest prospects of business and professional success have been ruined. A true but startling statement in this connection was made to our Society last year by Dr. Jewell, the Resident Physician of the Home for Inebriates in San Francisco. In his paper upon Alcoholism he tells us that in this one institution he has "treated over eight hundred cases in a single year," and that since its establishment, in 1859, over ten thousand patients have been admitted. When it is remembered that this Home is a local institution, and that all its inmates are without legal restraint or commitments, the number is calculated to alarm all who desire the well-being of our State.

The principal cause for a large proportion of our dipsomaniacs may, I think, be fairly attributable to the character of our pioneers, and the nature of the early life they led in California. It is a fact, that the discovery of gold induced the settlement of the State by young and vigorous people who, as a class, possessed the most active and highly wrought nervous temperaments. Easily influenced by the idea of a rapid accumulation of wealth, they entered into the uncertainties of mining, stock gambling, and speculation, and when disappointments brought attendant weaknesses, they were ready to stimulate by alcohol until the vital powers were depressed, and in many cases inebriety begun. "The force of adversity," a condition so well described by Dr. Crothers, of Hartford, has been a prominent factor in our State in the creation of inebriates. It is apparent, also, in most of our communities, that the conditions of mental rest among business and professional men are almost entirely wanting. The

speculative habits of our people, with a constant desire for change of residence, prevent that quiet home life which tends to recuperate the weakened brain power, and the result is seen in men who, by hundreds, seek to dull the sensibilities and procure a respite from mental excitement by indulgence in alcoholic drinks. As remarked by Dr. Wright, of Ohio, such cases "*think* until they are wild with nervousness and mental pain, and they drink for relief." It is indeed painful for us to admit that in our young State the evils of dipsomania are so manifest, and yet if we would attempt to control the disease, it is essential for us to state the reasons for desiring legal intervention. From the nature of our calling, we alone are specially informed upon this subject, and can constantly point to the most heartrending cases of inebriety in process of slow but fatal solution.

Each week we see its victims, unable to resist the numerous opportunities for indulgence which are everywhere at hand. The will-power enfeebled by a constant supply of alcoholic blood, yields to the impulse for stimulants, and we might as well expect a plant to turn from the light of day as a dipsomaniac to pass that which he knows will give him temporary exaltation and relieve the depression which follows indulgence. In some cases the sufferers are noted for shrewdness and business capacity, with every inducement for a regular life, and yet the passion is so overmastering that business, home and family ties are all set aside for indulgence in alcoholic drinks. If this is not insanity, what is it? How long must we wait for further evidences of mental disease before we can provide a way to avoid dementia with its attendant horrors?

It will be acknowledged that in the management of many of these cases we are met by the fact that the victims are yet in apparent successful business or professional life, and

that during the lucid intervals, which always occur, their conversation and acts are those of sanity. The weakness of the will power, the effects of indulgence, the changed home life, are only known to the family and intimate friends, or to the professional attendant. To the public the better side of human nature is exhibited, and very often the sufferer has an excellent reputation for good citizenship and public zeal. But how different the domestic side of the picture. The wife and mother, after years of risk to her life, even reluctantly tells us of her cruel experiences. No matter how kind in earlier years or how affectionate by natural disposition, this victim, when laboring under an attack becomes entirely changed, and his wife is a subject for cruel suspicion; yet true to her better nature she shrinks from exposing the cause of the family misery. She bears the sleepless nights and irregular days, and often with her own weak physical power endeavors to restrain her husband from indulgence in the maddening passion. The hallucinations which accompany this form of periodical mania are various, but so frequently concern the marriage relation that the wife is frequently subjected to the foulest charges of infidelity. In one of my own cases last year, the husband frequently told me of the visits of a strange man to the bed of his faithful wife, and this symptom has often been remarked as accompanying the mania for drink.

In calling your attention to the prevalence of the disease in California, and the means at hand for its alleviation or cure, we are met at the outset by the fact that although total abstinence be the only hope of safety, we cannot confine our patient in any place, where against his will, the desire for stimulants may not be gratified. Unless he submits to voluntary isolation we cannot force him to do what is essential to save his life. Perhaps, as in one of the cases I am now treating,

the dipsomania is a true insane impulse hereditarily acquired, and yet the symptoms of mixed mental unsoundness and sanity are so prominent, no Superior Judge would issue a commitment under the present State Lunacy Law. It is useless to appeal to the reason of the victim; remonstrances, the pride of family, the entreaties of those dearest to him are alike unheeded, and as he plunges into certain ruin, his wife asks: Where can my husband be placed to save him from alcohol? Unfortunately we are compelled to say that in California the rights of the individual include the right of your husband to commit moral suicide. We cannot force him to abstain from alcoholic drinks. He is still your master, and as he denies that he is ill or that he needs professional advice, we must fold our arms and wait until, by continued indulgence, he slowly drifts into a condition of dementia with its paretic and structural changes, and then, when too late to save—either him or his family from ruin—the law steps in and he is permitted to board at the expense of the State in an insane asylum and join the army of incurables in our already overcrowded institutions. Is there common sense in this method of dealing with so prominent a social question? Would it not be better to arrest this case in its formative stage and say to the sufferer: after a proper examination by competent authority, you have forfeited your rights as an individual and to save you from utter ruin, the State will authorize legal restraint. One of the main arguments for such interference is the fact that only by early treatment is there a reasonable hope of cure. While enforced abstinence may in a fair proportion of these acute cases result in recovery, it is a settled maxim that structural changes in the brain when induced by alcohol, are never benefited by treatment. As given in some recently prepared tables, thirty-four per cent. of diseased drunkards are cured when treated in inebri-

ate asylums. How few are saved when allowed the liberty of private homes in California, and are we not compelled to agree with Dr. Clouston when he asks Dr. Bucknill: "Can any one deny that all the attempts to reform in the world will fail to prevent the neurotic drunkard whose drunken father was insane, from drinking himself to death, so long as he passes gin shops every day with money in his pocket."

It might be urged that such cases of dipsomania could, by a change in our lunacy law, be well treated in our insane asylums; but in reply to such a suggestion it is asserted that no single advocate for such a practice can be found among those who have charge of the leading institutions throughout the country. They all admit that lunatic asylums are not adapted to the reformatory treatment of this class, and it is also found that the mere presence of dipsomaniacs is detrimental to the proper working of such institutions. To meet the urgent needs of these cases, we must first be able to place them under well regulated restraint in some suitable home for temporary detention, and to be able to do this, it will be necessary to follow the example of the State of New York and ask our Legislature for a law sanctioning either voluntary or compulsory commitments. It is now nearly twenty years since that great State, under the lead of the eminent Willard Parker, became the pioneer in the establishment of an institution for the relief of drunkenness as a disease. Its success has been so remarkable, and its continued necessity so apparent, that other communities are year by year regulating the evil in a similar way, and we feel assured that California will not fail to recognize the fact that the dipsomaniac has no right to his personal liberty, and that he is suffering from a disease whose influence affects society, and that to cure him it is necessary to place him under legal recognition. The diseased organizations, result-

ing from inebriety, are everywhere about us. We must treat these victims, as aptly expressed by Dr. Crother, "as cases of suicidal insanity, or an affection of the central nervous system in which the dominant insane impulse is to use certain narcotic agents for their effect, irrespective of all consequences."

The subject is one of great importance, and it is hoped that our State Medical Society will initiate an effort to bring the matter before the incoming Legislature, and thus secure the passage of a law for the control of inebriates. With this power to keep the poor victim of alcohol from drink we may save many who otherwise will fall into the degradation of *incurable* dipsomania.

In closing this paper, the Chairman of the Committee deems it appropriate to refer to the retirement of Dr. G. A. Shurtleff from the Superintendency of the Stockton Insane Asylum, as an event of no ordinary regret to the medical profession in California. For years he has filled that important position with such ability that we have all regarded him as possessing those personal and professional qualifications which belong to the skillful alienist. I am sure I but feebly express the sentiment of our Society when I say, we sincerely hope for his complete restoration to health, and deeply sympathize with him in the affliction which has deprived the State of his valuable professional services.

SACRAMENTO, April, 1884.

REPORT ON MEDICAL EDUCATION.

BY W. F. MCNUTT, M. D., L. R. C. P. ED., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: Your Committee on Medical Education has the honor and pleasing duty to present to you their report.

Your Committee finds that the literature of the subject is very voluminous. That all classes of the profession, from the ablest to the humblest, from the great teachers in the great metropolitan schools, to the most obscure country practitioners, have contributed their suggestions, criticisms and advice. At no time in the past history of the profession however, has the subject received the universal attention and agitation that it has in the past few years.

Like the discussion of all other important subjects, there has been elicited a great diversity of opinions. Every science, every religion, and every philosophy has its optimists and its pessimists, and like other sciences, that of medicine has advanced too slow for the former and in spite of the forebodings of the latter.

In presenting to you this very important and interesting subject we will try and confine our report within the limits expressed in the Constitution and By-Laws of this Society: Article 5, Section 10, viz: "The Committee on Medical Education shall prepare annual reports on the general condition of Medical Education in the State of California, as com-

pared with the state of Medical Education in other States of the Union, noticing the several medical institutions of the State, their course of instruction, the practical requirements for graduating, the modes of examination for conferring degrees, and the reputed number of pupils and graduates at each during the year; together with such other matters as they may deem worthy of consideration in reference to Medical Education and the reputable standing of the profession."

In regard to the general condition of Medical Education in in this State, your Committee feels sure that the medical student, the profession at large, and the public generally are to be congratulated.

Isolated as we are with thousands of miles between us and the older countries of education, the two medical colleges of our young State were among the first half dozen to raise the standard of Medical Education by extending their term of study from the ordinary two annual courses to three years' study.

If the Society will give the matter a moment's thought, it will recognize that it was a bold step for the Colleges of California; while nearly all the oldest and most celebrated Colleges in our Eastern cities are still only requiring two courses of lectures for their degree. But your Committee finds that our Colleges have not been contented with this advance merely; they have taken a bolder and more important step still; they have determined that all students hereafter who wish the degree of Doctor of Medicine from either of the two Medical Colleges, the University of California or the Cooper Medical College, shall give evidence of possessing at least a liberal English education before being allowed to matriculate. And this too, in the face of the fact that any young man, however deficient his education, no matter whether he can read or write, if he can but sign his own

name, can still receive a medical degree from many of the oldest, wealthiest and most renowned Colleges in our country.

In their effort to elevate the standard of Medical Education in this State, the Colleges hope to receive the sympathy and moral support of the members of this Society. They want this Society to know that the young men who receive their diplomas from either of the Colleges are worthy of its confidence and fellowship.

The faculties of both Medical Colleges have requested your Committee to extend to the members of the State Medical Society a cordial invitation for any of its members to be present at the annual examination of the students, thus enabling the members of this Society to see for themselves the class of medical men the Colleges ask them to welcome into the ranks of the profession. An educational requirement for matriculation, and the extension of the term of study to three years, are matters indeed upon which the profession of this State are to be congratulated.

San Francisco must be the center of Medical Education for the States, Territories and nations bounding on the Pacific Ocean. Here must concentrate the great hospitals to be built on this side of the continent. Here we have a climate, not to be equaled, for the study of anatomy. The Medical College of the Pacific, the oldest in the State (and now the Cooper Medical College), was founded in 1859, and has graduated about two hundred and eleven students. Its annual course of lectures extends from the 1st of June to the 1st of November, five months, with a preliminary term of three months, the attendance upon which is as yet optional with the student. Students are required to take three annual courses before coming up for graduation. Candidates for the degree in this College are subjected to both a written and oral examination. It has put into force an educational re-

quirement for matriculation, and I am informed by the Dean that last year, 1883, no less than five students who applied for matriculation, after an examination, were sent home to study one year to better qualify themselves in preliminary education, before being admitted as medical students. This is as it should be; this is a long step in the right direction. The total number of students at this College last year was seventy-nine, twenty-three of whom presented themselves at the end of the term for examination for the degree of Doctor of Medicine, five of the twenty-three failed and were refused degrees.

The University of California was founded in 1864, by the late Dr. H. H. Toland, as the Toland Medical College, was presented by Dr. Toland to the University in 1875. This College has graduated one hundred and ninety-eight students. An educational requirement for matriculation will be enforced after this year. The term of study in this College has been extended from two annual courses of five months' each to three annual courses of nine months' each. We believe this to be the longest course of study demanded by any College in the United States. The requirements for the degree in this College consists in an oral, a written, and a green-room examination. The length of time occupied in the oral examination is optional with each Professor, in the written examination each student receives about six comprehensive questions from each member of the Faculty. The green-room examination is the third and last; the students are called in singly before the whole Faculty, each Professor questioning the student in his department, thus giving the Faculty an opportunity to judge of the requirements of the student in all the departments. The student is then balloted for, when he must receive an average of seventy-five per cent. out of a possible hundred.

In 1882, five were rejected in a class of twenty. In 1883, two were rejected in a class of thirteen.

As far as your Committee can learn, the University of California is the only Medical College in this country that makes attendance on lectures obligatory. In this College a strict record of the attendance of the student is kept, and if one absents himself from twenty-five per cent. of any course of lectures, he forfeits his right to appear for his final examination. The total number of students at this College last year, 1883, was sixty-five, thirteen of whom were examined at the end of the term for the degree of Doctor of Medicine; two failed to pass.

DENTAL DEPARTMENT.

In 1882, there was added to the University a College of Dentistry, which promises every evidence of success. Its Faculty is intelligent and earnest, and is doing faithful work. The students are required to take lectures in Anatomy, Physiology, Chemistry, Materia Medica and Surgery with the students of the medical department. There is every reason to believe that the graduates of this College will be in their department, of great assistance to the medical practitioners, and will greatly advance the standard of Dental Surgery in this State. The College requires of its students two terms of nine months' each, while most of the colleges of Dentistry in the United States require two terms of but four or five months each. This College has established an educational requirement for matriculation; other Dental Colleges have not, except two of the eighteen in the United States, obliging every student to show evidence of a good English education. For the degree of Doctor of Dental Surgery, they are subjected to both an oral and written examination. The number of students last year, 1883, in this

department was thirty-three, ten of whom came up for graduation---three rejected..

PHARMACEUTICAL DEPARTMENT.

A report on the progress of medicine would be quite incomplete without reference to the College of Pharmacy, so intimately connected have the interests of these two sciences become.

The course of instruction in the California College of Pharmacy consists of two lecture terms of six months each, in four branches of study: Chemistry, Materia Medica, Pharmacy and Botany. In almost all cases, the students have had several years experience in a pharmaceutical establishment before they enter College, and in all cases they are required to have four years experience before they can graduate.

There are three examinations, the preliminary, junior and senior, the last named being for the degree. When the College was first opened in 1872, there were many persons engaged in pharmacy whose early educational advantages had been very limited, and it was not deemed best to exclude such persons from the benefits of college instruction on this account. But now that public attention has been sufficiently awakened to the necessity of a fair degree of general education being possessed by those who choose to make pharmacy their calling, the time seems ripe for the introduction of a preliminary examination which is now required of all matriculants. The step seemed a bold one, seeing that only two or three of the other twelve or thirteen Colleges of Pharmacy in the United State have as yet enforced this requirement, some of the largest, wealthiest and most honored being among the number that still hesitate.

The Junior examination is held at the close of the first

term, and only those who obtain the required percentage of credits are permitted to enter the Senior class. The Senior examination (for the degree), is written, oral and practical, conducted by a Board of Examiners, consisting of the four Professors and four or six other pharmacists.

The practical portion consists of the identification of a number of drugs, chemicals, and pharmaceutical preparations, followed by the actual compounding of physicians' prescriptions in the presence of the Examiners. In addition to this, the candidate is required to present a thesis detailing some original investigations in the way of phyto-chemical analysis, or some other form of practical laboratory work.

The California College of Pharmacy is the only institution on this Pacific Coast that provides special systematic instruction in those branches of practical scientific knowledge that are essential to the pharmacist. It is now furnishing to the rising pharmacists of this part of our country the same advantages as are enjoyed in the Eastern States. That the instruction it offers is appreciated, will be seen by the following figures:

Number of students, 1883.....65
Number of graduates, 1883.....13
Total number of graduates to close of 1883.....77

There were one hundred and sixty-three students last year in the three departments.

This then is what your Committee have to report on the general condition of Medical Education in this State.

As to its comparison with the condition of Medical Education in other States, your Committee thinks its colleges need not fear criticism. There are one hundred and nineteen recognized colleges in the United States; only fifteen require a three years course, and fifty-five demand an educational requirement for matriculation. Of these, eighty-nine

are regular, eleven homeopaths, thirteen eclectic, and six not classified. There can be no mercenary motive for the faculties of either of the California Colleges to graduate a large class, as all fees from students are expended in perfecting laboratories and appliances for teaching. The Faculties receive no remuneration.

To the young man without preliminary education who simply desires to obtain a diploma in the shortest possible time, and at the least possible expense, the Medical Colleges of California reverse Horace Greeley's advice, and say go East, young man.

The time was when Medical Colleges were justified in graduating students on a two years course of lectures, and when they would scarcely have been justified in demanding an educational requirement for matriculation. The country was sparsely settled, medical men were scarce, medical colleges were few, the number of studies were less then than now, and the facilities for obtaining preliminary education were anything but easy. There were also large districts of country where the people themselves had very little education or cultivation, and it was a great blessing to such communities to procure a man of some general intelligence who had had the advantage of a two years course of medical education in one of the large metropolitan cities.

But Mr. President, that time has gone by. There is now no longer any necessity for matriculating medical students who possess no preliminary education, or for demanding only two courses of lectures for graduation. The facilities for obtaining a fair preliminary education are abundant. Medical men are plenty, (some 90,000 regular practitioners in the United States), the profession is already overcrowded. And the Colleges are graduating about four thousand more annually. With a population nearly equal to our own, France,

in 1883, graduated only six hundred and sixty-two students, while the German Empire granted in the same year six hundred and ninety-two diplomas. Both of these countries have many more foreign students taking degrees at their colleges than we have in the United States. The general intelligence and culture of the people have greatly advanced, and there can be but one argument in favor of continuing the habit, viz: when a college is incorporated for the sole purpose of making money.

To matriculate as a medical student, a young man absolutely ignorant of even the rudiments of a common school education, and to graduate him after he has listened to but two courses of medical lectures, very little of which he understands (and it is being done every day in many of the largest colleges), is doing a great injustice to the young man as well as to the profession, is committing an outrage upon the community and is a disgrace to the learned gentlemen who put their name to his diploma.

I beg of every member of this Society to read an article read before the Section in State Medicine of the American Medical Association last year at Cleveland, Ohio, by Dr. Albert L. Gihon, Medical Director United States Navy, and President of the Naval Medical Society. You will find the article in the Journal of the American Medical Association, Vol. I, No. 2, January 12th, 1884.

Dr. Gihon had been for many years Examiner in the Navy Medical Board. They examine candidates for the navy without reference to their possession of a medical degree; the Board having learned by experience, says Dr. Gihon, that a medical degree is no guarantee that the candidate possesses any education, either preliminary or medical. The questions propounded by the Board to the candidates are recorded as well as their answers, and Dr. Gihon in his article gives a

large number of the answers taken at random from several years candidates, which candidates he assures us held medical degrees from the oldest, the best endowed, and most reputable medical colleges in the United States. One candidate informed the Board that Galen introduced vaccination in the seventeenth century. Another that the common sources of ammonia is phenic acid, which is a natural secretion from the beaver. Another says the temperature of the system is variable in *helth*, the cuticle stands at 70°, the digestive organs at 100°; any great deviation *from* this state denotes that the patient is a pathological condition. Another states that the normal condition of the human body is from 112° to 140°. Says Dr. Gihon, if you feel inclined to laugh at this tissue of absurdities, recollect that it is your professional brother and peer to whom I have introduced you. A thousand times better for humanity had he drawn his inspiration at the Hahnemannian fountain and prescribed trillionths and decillionths of carbo, spongie and sambucus.

The article must be read to be appreciated. Dr. Gihon states that he had just received a note from a member of a Board then in session, who writes, that "the comic opera and minstrel performances are nothing compared to the Board entertainments."

The proportion of homeopaths to regular physicians in the United States has been rapidly on the increase for the past few years, and is now one to ten.

Everybody will admit, Mr. President, that the general education, the intelligence and culture of the whole people of the United States is steadily and rapidly improving.

It goes without saying that an intelligent people will demand a higher degree of cultivation in their teachers, their clergymen, their lawyers, their engineers and their medical men, than will an ignorant people. And yet the proportion

of irregular practitioners in the United States is greatly on the increase.

This phenomenon has one of two explanations, either the study of anatomy, physiology, chemistry, materia medica, therapeutics, obstetrics, practice of medicine, surgery, gynecology, with all the advanced methods and appliances for physical diagnosis, with the great advances made in the sciences of pathology, physiology, biology, and etiology of diseases, etc., goes for nothing and does not qualify the student to treat diseases as successfully as the knowledge which the irregular practitioner possesses, or a very large number of what is called the regular medical profession obtain their degrees without any or very little of the knowledge which the regular colleges profess to teach. Your Committee believes that the latter is the true explanation. An educated physician must be better qualified to treat diseases than an uneducated one. We are forced then to the conclusion that the proportion of irregular to regular physicians is increasing in the United States because there are a large number of men in the ranks of the irregulars who are better qualified to treat diseases than hundreds of the regular physicians. The reason for the better qualifications of these irregulars is this, viz: Of the eighty-nine regular colleges, the fifty-five demanding an educational requirement for matriculation are nearly all small, graduating but few students; while the great colleges, such as Bellevue, University of New York, College of Physicians and Surgeons, New York, Jefferson, etc., sending out graduates every year by the hundreds, demand no preliminary education. The proportion of graduates from the regular medical colleges which demand a preliminary education is about ten per cent. While of the eleven homeopatic colleges in the United States ten of them demand an educational requirement for matriculation, making

ninety per cent of their graduates from colleges requiring a preliminary education.

The faculties of these great colleges are largely responsible for flooding the profession with ignorant men, and they have no excuse to offer for continuing the practice, but the money consideration. How are we to enforce a higher standard of Medical Education for the rank and file of our profession? There are some who think the remedy lies in a new code of ethics, that as so many irregular are more intelligent than many of the regular physicians, all class distinction had better be abolished. The therapeutics of this remedy is incomprehensible to your Committee. We could have comprehended the therapeutics of the new code men, had they taken the stand that, as the regular medical colleges were flooding the country with physicians, many of whose qualifications are far below that of many irregular practitioners, hereafter they would not meet in consultation any medical man whose degree does not come from a medical college which demands an educational requirement for matriculation, and a three years course for graduation. The latter treatment, however radical it would seem to some, would certainly be in the way of supporting the patient, while that adopted by the new code men savors of antiphlogistics, and the *Lancet* says: "Bleed him until he faints, and if he recovers, bleed him again," they say.

Very little can be expected from legislation. Legislative enactments never have done much and never will do much to raise the standard of Medical Education. The most that could be accomplished by legislation would be an Act defining the qualifications for registration; for instance, allowing none to register except those who are graduates of colleges which demand a preliminary education and three years study for a degree.

The profession must look to itself, and must be a law to itself.

Let the California State Medical Society take the stand, and appeal to the other States to follow its example, that hereafter no medical man can be a member of this Society except he be a graduate of a medical college where an educational requirement for matriculation, and three full years study for a degree, are demanded and enforced.

If the State Societies will do this, and no medical man can become a member of the Americal Medical Association unless he be a member of a State Medical Society, students will be forced into the three year colleges.

SUPPLEMENTAL REPORT ON MEDICAL EDUCATION.

Critical Remarks.

BY W. S. THORNE, M. D., OF SAN JOSE.

There is a growing opinion that the present system of Medical Education is radically wrong, and that the time has come when steps looking towards reform become imperative. The salient vices of the system may be enumerated as follows: First, the great number of medical schools issuing diplomas. Second, non-requirement of preliminary examination. Third, faulty methods of study. Fourth, low average of the medical faculty. With a population but little in excess over that of the British Isles, and with a numerical density thirty-five times less, we have about ten times the number of medical schools. With our facilities for economic and rapid transit, and with the unsurpassed advantages for clinical study presented in the great commercial and manufacturing centers, what expediency arises out of our geographical or our social history for the existence of so many medical establishments? To the unbiased and disinterested observer there can be *none*. There is but *one* explanation, and that is this: they are commercial enterprises, with the two-fold object of turning an honest penny, and disseminating the personal celebrity of ambitious *empresarios*. The strife engendered by the efforts to obtain a lucrative follow-

ing, and the competition for cheap medical degrees, has led very naturally to the result which constitutes our second objection, viz: the low standard of general education required by the medical schools. Preliminary examinations are quite the exception. Absolutely nothing is known of the student's literary attainments beyond his ability to sign the college register. The first essential steps towards a thorough medical education are a knowledge of the physical sciences, chemistry, botany and the elements of physics. This very generally admitted fact is ignored or disregarded, and it may be with confidence asserted that the average student enters upon the medical course without adequate preparation in these branches. He is often deficient in the elementary requisites, as reading, writing, spelling, composition, arithmetic and algebra. These are fundamental defects that strike at the root of scientific attainments. Without sufficient preliminary training, these unfortunate youths are required to enter upon the study of some ten or twelve different subjects in physical science, involving immense detail and a voluminous literature; the whole to be mastered in a two or three years course. The scheme is irrational, and its objects incongruous. A large and substantial superstructure cannot be supported by a weak foundation. The third objection is, as to the methods of study. There is too much hearsay evidence about scientific matters in medical teaching. Our knowledge is too *bookish.* We are taught of the thing, rather than by the thing itself. Lectures, illustrative of phenomena already familiar to the student, are eminently useful. But lectures upon theoretical matters are neither more nor less valuable than the same subjects in the text books. What does the ordinary lecture on physiology or materia medica amount to? Usually a rehearsal of the chapter upon the same subject already in the hands of the student. In my first course in

physiology I was *told* that the blood circulated in the body, but I did not know it from actual observation; and important as the fact was for the comprehension of other physiological truths, I might have forgotten it. Isolated facts learned from books or lectures are worthless. Their relevancy to visible forms and practical uses must be shown, if we are to enrich the mind with ideas rather than burden the memory with rubbish. "Without an accurate acquaintance with the visible and tangible properties of things, our conceptions must be erroneous, our inferences fallacious, and our operations unsuccessful." Let the student, when possible, study the *thing* itself rather than the most skillful picture of it. Let there be greater stimulus to independent thought and observation, that the student may organize and assimilate the knowledge he acquires. If the true method of teaching is from the concrete to the abstract, then by our present system is the order reversed, since we teach principles before practice. Every science, says Spencer, is evolved out of its corresponding art, and therefore, every study should have a purely experimental introduction." But now it comes to pass that at the end of the course the student has yet to learn the *art* of medicine. That which he most needs he has yet to acquire. He has a plethora of abstract knowledge and a diploma, and happy is the man whose native vigor of mind survives. Our fourth objection is the low standard of the average medical faculty, With the greatest deference to the learned and justly eminent teachers in the medical schools, I respectfully submit that the average is too low. In the very nature of things there can be but few great teachers, for the reason that there are but few great philosphers, and teaching in a broad sense is a high philosophical calling. But we have a right to expect that the medical teachers shall be exceptionably learned or otherwise preëminently qualified for the position.

The spring rises not above its source. The hope of the profession is in the keeping of the teacher and his methods, and mediocrity should have no place in the medical chair. Omitting as a matter of delicacy the too frequent literary deficiences, I do not believe that the men who teach the theoretical branches of medicine should be constrained to earn their bread by active practice. The professorship should be sufficiently remunerative, and he who is not content with the honor of the position, and a modest competency, is not the right man in the right place. "What the student wants in a professor is one who shall stand between him and the infinite diversity and variety of human knowledge, and who shall gather all that together, and extract from it that which is capable of being assimilated by the mind; that function is a vast and important one, and unless in such subjects as anatomy, a man is wholly free from other cares, it is almost impossible that he can perform it thoroughly well." Such wants cannot be supplied by four or five hours a week at the hands of a hurried practitioner. There are few chairs in a medical college that would not be better filled by the devotion of the entire energies of the occupants. The pernicious custom in this country of regarding the medical chair as merely a stepping-stone to a lucrative practice should be discouraged. If money to the average mind is preferable to an honorable position with a modest competency, the profession offers but an indifferent field. In the wide diversity of human opinion there may be those who do not believe that our medical system demands reform. But this fact should not discourage us, for "the *disagreement* of the enquiring is but a phase of human thought, in its transition to that unanimity in wisdom," towards which, let us hope we are hastening. It is enough, however, that intelligent opinions here and elsewhere agree that reforms are necessary. But grumbling at

and tinkering with the subject of Medical Education will do no good, until we distinctly recognize the fact that no medical college should be the ultimate authority upon the qualification of its students to practice. These bodies should be restricted to giving the student a thorough Medical Education, but it should be reserved to some independent body to say whether or no that duty had been *honestly* performed. Under the present system a uniform standard of attainment cannot be looked for. At present the medical degree indicates that the holder has attended some medical school for a period varying from *three* months to three years; and for reasons that appear often inscrutable, a diploma is issued. I am acquainted with a certain college in a small western town that sometimes makes an M. D. out of very illiterate material in three months. No one doubts the *substantial* reasons the Faculty have for such action---no one believes that such transformations are consistent with the honor or advancement of the profession. Medical schools should have the power to issue certificates of study and for satisfactory examination in the theoretical and practical branches of medicine, the license to practice being granted by a State or National Board. At the end of two years of actual practice, the *alma mater* should confer the degree. The State Board should examine upon anatomy, physiology, surgery and obstetrics *only*. The examination in these branches should be *thorough* and *exhaustive*. *No set* or *class* of medical practitioners should be exempt from this examination. As no man should have legal sanction to tamper with human life without a knowledge of structure and functions of the body, so any man possessing this knowledge, whatsoever his therapeutic creed, is not likely to become a dangerous practitioner. He who pretends without this knowledge to treat human diseases scientifically, is an imposter, and should receive that punishment due to

knavery and criminal deception. Let the practitioner, well grounded in the fundamental principles of medical science, treat his patients as best he can. Let him allure the sick man back to health by *ablutions* or *infinitessimal dilutions* if he can; but let there be a fixed standard of acquirements essential to this privilege. As there is no distinctive presbyterian science of navigation, nor a peculiar system of baptist astronomy, we may rationally hold there can be no sectarian distinctions in the science of anatomy, or of physiology. In all that appertains to exact science of the human body, the law should demand a uniform standard of attainment as a guarantee to the exercise of the individual judgment in the treatment of human disorders. Then and not till then will the profession as a body, take its deserved position in the respect and confidence of the public.

REPORT OF COMMITTEE ON GYNÆCOLOGY.

BY O. O. BURGESS, M. D., CHAIRMAN.

The management of fibroid tumors of the uterus has attracted a great deal of attention and study during the past year, and valuable improvements have been made in their surgical treatment. The appalling mortality which formerly attended radical operations for their removal has been greatly reduced, and difficulties which it had seemed must always stand in the way of success have been measurably overcome. But much remains to be accomplished before anything like the phenomenal success of ovariotomy will be reached in these operations. Indeed, it seems highly improbable that operations which require the removal of uterine tissue, and especially those that open up the cavity of the uterus, will ever be so perfected as to reduce the death rate to that of ovariotomy. Still there are men, high in authority, who are sanguine in the belief that such a state of perfection will eventually be reached—or pretty nearly reached.

The management of fibroid tumors of the uterus has always been a subject more beset with perplexities and difficulties than any other in the whole field of gynæcology. And the increasing success of operative procedures, by expanding the indications for surgical treatment, serves rather to complicate these difficulties than to clear them up. They are met with in full force in the consideration of the first and most important question

that arises in any given case of uterine fibroids: namely the question as to whether it shall be treated or let alone. In ovarian crystomata it may be broadly stated that surgical treatment is always indicated, because life is always in jeopardy. But uterine fibro-myomata are not necessarily dangerous, and, indeed, it may be said that cases are comparatively few in which life is directly imperiled by them. We may lay down the proposition, therefore, that imminent danger to life, as an indication for surgical treatment of uterine fibroids, seldom exists. When it does exist, however, the indication is so absolute as to justify the most hazardous operative procedures. The indication for operation next in importance arises in that class of cases where life is rendered almost unendurable, although it may not be in immediate danger. Here, again, there should be no great difficulty in deciding the question as to the advisability of surgical interference. But it is only when we leave aside cases like these, in which the indications are clear and positive, and approach those in which they are neither positive nor well-defined, that we fairly encounter the difficulties above referred to. Increasing success of operative procedures constantly widens the range of cases in which they may become advisable, or at least justifiable. At the same time and to the same degree, it complicates the indications for operation by rendering them more numerous and more uncertain. There are no general principles that can be exactly applied, and in a given case it will probably be the individuality of that case, the special conditions that environ it, which will finally decide the question of treatment or non-interference. If we were to base the advisability of operations for removal upon the favorability of their prognosis, we should be met immediately by the fact that, as a rule, there is the least necessity for operation in precisely those cases where it would be most likely to succeed. It

become less troublesome after the change of life, while they have little tendency to cystic degeneration. In such cases, therefore, expectancy of the near approach of the menopause should weigh heavily in favor of non-interference.

But there is another most important element in the consideration of the question of surgical treatment of uterine fibroids which may as well be introduced here. So far, in speaking of operative measures, reference has been had only to hysterectomy and other radical operations for the removal of uterine fibroids by laparotomy. And the difficulties in the way of a judicious decision of the question of operation have been based largely upon the mortality of these operations. Fortunately we are not compelled to rely wholly, or even largely, upon improvements in these operations for the extension and increased safety of our surgical means of relief in uterine fibro-myomata. The safety and value of the operation of removal of the uterine appendages for the relief of these growths are being more clearly established every day. The results of the numerous operations of this kind reported during the past year have been extremely gratifying. There have been very few instances in which the size of the growth has not been reduced sufficiently to afford comparative relief, while the great majority of cases have been practically cured, --the tumors gradually disappearing, or becoming so much smaller as to give no further trouble. The mortality of the operation has been reduced below that of ovariotomy.

An operation like this, in which the mortality has become almost *nil* in the hands of expert operators, and in which the results are so satisfactory, must assuredly have a great future. It is not suitable to all cases, and can never do away with hysterectomy and other radical operations; but it is justifiable in a wide range of cases where the dangerous radical operations are not, and never will be, unless the sur-

gery of the future shall reduce their mortality to a degree which it now seems difficult to expect.

It appears that the tumors which have been most rapidly improved by this operation were intra-mural—those cases in which the whole uterus is uniformly enlarged, or in which there is little tendency of the growth toward either its serous or mucous surface. And this is the class of cases that most frequently calls for relief, because of rapid growth, pain, hemorrhage, or chronic invalidism. On the other hand, tumors with pelvic adhesions and enlarged uterine arteries have been the slowest to disappear. This operation has also given satisfactory results in cases of sub-mucous tumors. It is preferred by many to enucleation by the vagina, except in cases where the tumor is single, small, polypoidal or projecting well into the cavity of the uterus, and therefore easy of enucleation. In all other suitable cases of this class it is believed to be much safer and equally efficacious.

The applicability of this operation would seem to be limited however, to tumors of small or moderate size. Besides the risk of cystic degeneration of large tumors, following this operation, it is often difficult, or impossible even, to do the operation where the growths are large, and uterus, tubes, ovaries and tumors form one confused and adherent mass. Finally the operation would probably fail very often to reduce the size of large tumors sufficiently to afford material relief. The time for the operation of removal of the uterine appendages, therefore, is in the earlier history of uterine fibroids, before they have reached a size which dooms them to the more dangerous operation of hysterectomy.

To return now to the question of operation or non-interference in uterine fibro-myomata, we conclude:

1. That, notwithstanding the decreased mortality of hysterectomy, that operation is still unjustifiable except when life is

in imminent danger, or so full of suffering as to be almost unendurable, and when the operation of removal of the uterine appendages is impracticable or unadvisable.

2. That the safety and success of the operation of removal of the uterine appendages increases largely the range of cases in which it is justifiable. At the same time, in view of the fact that many cases of uterine fibroids never become very troublesome or at all dangerous to life, it becomes a very difficult matter to define the indications for this operation. They must be based largely upon the individuality of the case—the danger to life, present and prospective—the amount of suffering—of hemorrhage—of loss of activity and usefulness, and other considerations that, taken together, shall seem to warrant the risk of the operation.

REPORT OF COMMITTEE ON DISEASES OF WOMEN AND CHILDREN.

BY L. M. F. WANZER, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: As Chairman of your Committee on Diseases of Women and Children, I have considered it better to collect and as far as possible to present, the well considered opinions of the members of our Society upon the diseases mentioned and upon questions closely relating to these subjects, than to hazard any theories or speculations of my own in the form of an original article.

In accordance with this view I addressed a printed circular letter to each member of the State Medical Society, requesting the desired information. Several members very promptly and kindly complied with the request, and I now beg to submit for your careful perusal, the several papers received embodying this information, in almost the exact condition in which these papers came from their authors' hands.

In addition to the original articles, I have received from Dr. J. Simon, short extracts, translations from the *Gazette Hebdomadaire* of Paris:

There has been so much good work done during the past year, that it is difficult to note the most interesting cases. In this city, in December last, Dr. A. P. Dudley, late House Surgeon to the New York Women's Hospital removed the uterus for carcinoma—the patient is now apparently well.

Dr. Von Hoffmann, of the German Hospital has also successfully performed a similar operation.

At the Pacific Dispensary Hospital, we have been remarkably successful in the treatment of the diseases of children. Our success, I believe, is due as much to trained nurses, as to medication, and I trust it will not be deemed ill-timed or out of place to call attention to the training school for nurses in connection with the Pacific Dispensary Hospital; because out of the twenty training schools for nurses in this country, I believe that is the only one on this coast, and because I believe the effectiveness of medical skill is so much increased when assisted by intelligent nursing that the trained nurse should be encouraged by the practitioner as much as possible.

Professor Oliver Wendell Holmes, in his oration of October 17th, 1883, says: "Now it is just in these little unimportant, all-important matters that a good nurse is of incalculable aid to the physician, and the growing conviction of the importance of the thorough training of young women as nurses is one of the most hopeful signs of medical advancement. So much has been done and is doing, that the days of the Sairey Gamps and Betsy Prigs are numbered."

I now submit the following papers and the names of their authors:

A CASE OF TUBAL PREGNANCY.

Mrs. E——, 24 years. Married five years; no previous pregnancy. Uterine disease for which she had treatment by good physicians during these years. Nervous symptoms about fifteen months since, which seemed due to uterine troubles, increased after a six months amenorrhœa, so that she was committed to the Napa Asylum. A residence of three months cured her, and for nine months she had enjoyed good health. November 16th, 1883, she menstruated

last. I was called first to see her the 18th of January, 1884, for amenorrhœa of two months, which alarmed her as a prodrome of insanity. Digital examination showed enlargement of uterus, but this she said had been the diagnosis of former physicians, and it was nearly a month later before she could be persuaded that she was really pregnant. Vomiting had been very persistent and so continued at times during her life.

There seemed to me peculiarity about the uterus, the antero-posterior diameter being less than it should be, and three days before her death I had felt quite troubled about it. The tumor had, however, appeared above the pubis, and although ballottement could not be felt or the uterus raised bi-manually, I had diagnosed that to be owing to adhesions high up behind the uterus, which I encouraged her to feel were being stretched, so that by four and a half months I firmly believed she would find the severe "abdominal cramps" had passed by and all would be well.

On Sunday, March 9th, I was summoned, having seen her last on the Friday before, and then leaving her quite comfortable. Her appearance on Sunday was of complete collapse, cold extremities, marked pallor, abdominal pain intense, some tympanites, a dark grumous discharge from vagina. Temperature normal, but pulse thready and very rapid. The previous night had been very stormy and a skylight had blown from a neighboring roof on the roof over her room, frightening her very much, and before she could fall asleep again severe vomiting occurred, followed gradually by the condition in which I found her; I gave stimulants milk and limewater, opium by mouth and hypodermically, leaving her after some hours easier. This ease continued only a little while. She gasped as she was speaking, and was dead. My request for a post-mortem was so decided that it

was reluctantly granted. Fourteen hours after death I opened the abdomen, found effused blood on first incision, and in the left iliac-fossa lay the four months fœtus; the sac which was made up of the dilated fimbriæ of the fallopian tube was lying directly over the fundus of the uterus and held there by bands of somewhat recent inflammation to the omentum, which was drawn very close to the pubes, causing when the bowels were much distended, the cramps from which she had suffered. The uterus was about five inches in length, the lining membrane, the decidua, being half an inch in thickness and discharging the dark grumous matter before mentioned. The long period of sterility preceding the case is given by Lusk as of frequent occurrence, being due to inflammatory processes. C. B. BROWN, M. D.

Gazette Hebdomadaire de Medecine, et de Chirurgie, January, 1884.

EXTRA UTERINE PREGNANCY. EXTRACTION OF THE FŒTUS THROUGH LAPAROTOMY, BY M. LUCAS, CHAMPIONNIERE.

M. Lucas, Championniere, presents to the *Societe de Chirurgie* the photographs of two fœti which he extracted through laparotomy in two cases of extra uterine pregnancy. Both mothers had fever, emaciation, and presented all the symptoms of hectic. In one case the pregnancy dated back fifteen months; the child was found in a purulent cyst and in a state of relatively good preservation. In the other case, the pregnancy dated back twenty-six months and the child was connected to the cyst through strong adhesions. The operation in the second case was long and laborious and incomplete, insomuch that a leg and a foot were left in the cyst. In both cases the recovery took place without rise of tempera-

ture. Recovery is complete in one of the patients, whilst in the other a fistula persists. Both patients have menstruated since.

Gazette Hebdomadaire de Medecine, et de Chirurgie, February 22d, 1884.

EXTRA-UTERINE PREGNANCY. EXTRACTION OF THE FŒTUS THROUGH ELYTROTOMY—RECOVERY—BY M. PINARD.

M. Pinard relates a case of an extra-uterine pregnancy of the abdominal variety in which the child attained its full growth, died at the time of the spurious labor, and was extracted two months after its death through elytrotomy. The patient is a woman thirty-one years of age, the mother of two children who were born at full term. She presented in November, 1883, all the symptoms of a third pregnancy, differing from the preceding ones by such symptoms as violent pains in the abdomen, impossibility for the patient to attend to her usual occupation, and the obligation of remaining constantly in bed. At the usual term of pregnancy, the symptoms of labor came on, somewhat attenuated, however. Then all pain ceased and the breast increased in volume as after a normal labor. The diagnosis of extra-uterine pregnancy was then made. At the end of two months, the abdominal tumor, which had remained the same in size from the time of the labor pains, increased to twice its volume. The cause of this increase in size, as found by examination, was the accumulation of a certain amount of liquid in its interior. At the same time violent pains occurred; difficulty in micturition and idefecation also set in, and the general disturbance appeared severe enough to M. Tarnier, who was then consulted, for this practitioner to advise removal of the tumor, per vaginam. This process was adopted on ac-

count of the protrusion of the tumor into the posterior vaginal *cul-de-sac*. M. Pinard incised the protruding part in the *cul-de-sac* and the fœtus was extracted without any trouble. The placenta, adhering very firmly to the internal wall of the cyst, was left in place, but injections of a 1-2000 solution of cor-sublimate were practiced every two hours and continued at the same interval of time during eighteen days, when the placenta was detached spontaneously and expelled. During the whole period of treatment there were no signs of mercurial intoxication, and all septic accidents on account of the retained placenta were avoided. A month later the patient had entirely recovered. M. Pinard, in summing up, calls attention to the following facts: First—The accumulation of liquid in a fœtal cyst a month after the death of the fœtus; second, the protrusion of the cyst in the excavation, coinciding with the absence of adhesions between the abdominal wall and the tumor (which caused elytrotomy to be preferred to laparotomy); third, the retention of the placenta during eighteen days without septicemic accident; fourth, the absence of mercurial intoxication, in spite of the great number of injections; fifth, the fact that there is but one other such operation on record, in the same conditions, and equally followed with success.

RETAINED PLACENTA OF TWO YEARS—DISCHARGED WITH AN ABORTION AT THE THIRD MONTH.

Mrs. Hutchins, Church St. corner 22d, a very weak, hysterical American woman, aged about thirty-three years, applied at the dispensary clinic early in January of the present year, for treatment. Had had six children, the last, two years old; and this with the one before was rachitic and unable to walk. At her last confinement she had received

no regular assistance. Menstruation had been regular since the last child was weaned.

Upon examination, the uterus was found very much prolapsed, and the os eroded with the usual discharge; subinvolution extreme. By Simpson's sound its length was found to be four inches.

An Emmett's pessary was used to reduce the prolapse, and alternately iodized phenol and ergotine applied to the os and cervical canal, and bromide potassium in 25 gr. doses, three times daily, given for the subinvolution and nervous condition. This treatment, continued two months, did but little good. Menstruation occurred regularly and no suspicion of pregnancy occurred either to the patient or the physician.

On March 1st, at the usual time for menstration, a flooding came on; being unable to go to the patient that day the physician sent out to her two doses of fluid extract ergot, which controlled it. Two days after, at night, a three months fœtus and membranes without the placenta came away, also with a severe hemorrhage. After dilating the os, the placenta was easily removed and presented nothing unusual.

The uterus felt perfectly contracted, but still larger than usually found. After two days, hemorrhage came on again and, with considerable uterine action, there was expelled, what the husband described as a piece of flesh, about the size of his hand--this he carefully burnt before it could be seen by the physician. The woman had lost considerable blood and fearing that another return of hemorrhage would be fatal, ergot was left to be taken at regular intervals.

Next day, upon visiting the patient she had just had another hemorrhage, and expelled another piece of matter which the husband said was just the same as the last, but only half as big. The piece weighed about three ounces and was fully

developed placental tissue, most of which had undergone fatty degeneration. This also, accidently, was lost.

The only conclusion that I could come to, was, that the two pieces were of retained placenta from a former pregnancy, and that their being there accounted for the prolapse and all other abnormal conditions.

Since then the woman is greatly improved in every way, and in a little time promises to be in better physical condition than for the past two years.

S. NEWMAN, M. D.

Gazette Hebdomadaire de Medecine, et de Chirurgie, February 15th, 1884.

RESEARCHES ON DEVIATIONS OF THE MENSTRUAL FLOW. BY DR. J. ROVIER.

In summing up a very interesting work based on the observation of three hundred and eight cases, the author finds that in two hundred and seventy-seven cases the menstrual discharge was located in a single organ, or in similar organs right and left of the body, and in thirty-one cases it was located in several regions at the same time.

In thirty-eight cases the deviation had taken place through sores, ulcers or tumors. In fifty-one the flow occurred through the pulmonary mucous membrane. In fifty, through the stomach. In thirty-eight, through the lower limbs. In thirty-six, through the mucous membrane of the nose. In twenty-nine, through the eyes. In twenty-seven, through the arms, the hands and the fingers. In twenty-six, through the mammæ. In twenty-three, through the arms and intestines. In twenty-one, through the ear. In seventeen, through the mouth, tongue, and lips. In thirteen, through the face. In thirteen, through the trunk, back and abdomen.

In thirteen, through gums and alveolar processes. In ten, through the urinary mucous membrane. In nine, through the scalp. In nine, through the umbilicus. In four, over the surface of the whole body. In two, through the inguinal fold. In one, through the axilla.

DOUBLE OVARIOTOMY UNDER CARBOLIC SPRAY, WITH BICHLORIDE OF MERCURY AND CARBOLIZED GAUZE DRESSING.--RECOVERY.

Ovariotomy is so frequently performed that but little interest attaches to a report of an ordinary case, and although there is, perhaps, nothing very extraordinary in the one which it is proposed to briefly detail, yet it is hoped that one or two points in its history may render it worthy of record.

On the fifth of last month I was requested by Drs. Tooley and Baylor, of Willows, Colusa County, to operate upon Miss DeVere, a lady of Irish nationality, and about fifty years of age. As soon after our arrival at Willows as possible, Dr. Baldwin of this city, Drs. Tooley and Lovelace of Willows, Mr. Merrill and the writer, set out for the patient's residence, about twenty miles distant, arriving about 9 P. M., and found her in excellent condition and spirits. She informed me that she was about fifty years of age and had enjoyed uninterrupted good health until about four years ago, when her menses ceased. Nothing of special interest occurred, however, until about two years since, when she was suddenly seized with severe, lancinating pains in the left ovarian region, and for the relief of which Dr. Tooley was consulted. The pains being periodical in their character, the doctor prescribed accordingly; but no relief being obtained he was induced to examine more critically, and readily discovered what was believed to be an ovarian tumor about the

size of a large orange. By the following August the tumor had acquired very large proportions, and at the suggestion of her medical attendant, Prof. L. C. Lane of your city was consulted, who confirmed the diagnosis already made, and proposed ovariotomy. When, however, the time for operation had arrived the patient, without communicating her intentions, returned to her home. As is not infrequent in like cases, she then consulted every mountebank in the country, a heathen Chinee at Red Dog, and a vile seeress at Cloverdale being of the number. All, of course, assured her she had no tumor and that she could be easily cured. Nevertheless she gradually increased in size and was tapped by a Dr. C. who had heard of the case and who informed her she was suffering from dropsy and had no tumor. It is said that about four gallons of semi-transparent treacly fluid was drawn off, followed by much relief to the patient, and the greatest imaginable gratification to the doctor, who exultingly informed her he knew he was right and could now guarantee a cure. The fluid, however, re-accumulated, necessitating a re-tapping within a month, and a like operation was soon afterwards required for the third time. The sudden and unexpected death of her medical attendant about this time necessitated the employment of Dr. Tooley, her regular family physician, who found it necessary to perform paracentesis every three or four weeks until he had thus operated four times. The slow and progressive emaciation which supervened, together with the fact that the time intervening between the operations became gradually lessened, compelled her to accede to the doctor's proposition of ovariotomy.

Everything being in readiness, on the following morning the patient walked to the operating table, exhibiting no evidence of emotion or fear, and placed herself upon it. Squibb's stronger ether was administered by Mr. Merrill, a

gentleman well skilled in the administration of anesthetics, the patient coming under its influence very kindly. The abdominal walls having been now well washed with a solution of bichloride of murcury, one to a thousand, and the carbolic spray being properly placed in operation, an incision five inches in length was made through the abdominal walls. The peritoneum was then exposed and was divided upon a director, bringing into view the glistening surface of the tumor. As anticipated, adhesions were found over its entire surface, in fact nowhere could there be found any part of the surface of the tumor which was not adherent to the peritoneum. To the concave surface of the liver and to the spleen as well as to the pelvic viscera it was likewise attached by firm adhesions, all of which were carefully broken up with the hand. The patient having been then turned slightly upon her side, a Well's carnula and trocar, with hose attached, was thrust into the cyst and a very large quantity of fluid, similar to that already described, was conducted into a tub at the bedside. Two additional cysts of considerable size were in like manner emptied of their viscid contents and the tumor was raised out of the abdominal cavity. It was now observed that both ovaries were implicated, a tumor arising from each, but which became so intimately blended as to render them incapable of separation even after the complete removal of the mass. The left pedicle being large and broad, was transfixed, and each half ligated with a silken cord previously well carbolized and subsequently dipped in the bichloride solution. The right was secured with a single ligature as close to the uterus as it could be applied, because of a small cyst it was found to contain. After dividing the pedicles with the knife it was observed that a portion of the cyst referred to had been left attached to the stump. A considerable quantity of blood

was found to have oozed from the peritoneal surface, although no vessel could be discovered requiring the ligature. The whole abdominal cavity was now thoroughly washed by soft carbolized sponges with the bichloride solution, one to a thousand. When it was *known* that there were no bleeding points, and when all present were satisfied that the abdominal cavity was thoroughly cleansed, it was carefully dried by means of Lister's carbolized gauze. The wound in the abdominal walls was now closed by silver wire sutures, a large, soft, flat and warm sponge having been first placed over the bowels to prevent the escape into the abdominal cavity of whatever blood might be occasioned by the needle punctures during this part of the operation. Superficial sutures of silk were placed in the intervening spaces. Several layers of gauze were then carefully applied, over which oakum previously prepared in the bichloride solution and dried, was carefully adjusted; then a light flannel compress extending some distance beyond the previous dressings, and lastly a flannel binder. The patient having been properly cleansed and dressed was now placed in bed and jars filled with hot water applied to her sides and extremities. An hour and ten minutes were found to have been consumed in the operation. Healthy reaction soon became established, and Dr. Baldwin and myself being desirous to take the twelve o'clock train for home, left our patient in the care of Drs. Tooley and Lovelace. Nothing worth mentioning occurred during the subsequent history of the case other than that it progressed to a safe and happy termination. At no time did the temperature reach 100°. On the sixth day, when it was deemed advisable to change the dressing, about half a pint of serosanguinolent fluid escaped between the two lower deep sutures, the sinus formed continuing to discharge the same character of fluid for a few days subsequently, when it grad-

ually ceased. At no time was there any odor to the discharge; nor was there any considerable amount of pain experienced excepting on the third day, which, however, was readily controlled by small doses of morphia.

On the tenth day the first stitches, and two days afterwards the remaining ones, were removed. Broad adhesive strips of rubber plaster were then applied, which are still allowed to remain. A brief note from Dr. Tooley of this date, April 4th, says: "Your patient is entirely well, is about the house and takes her meals regularly with the family. Although I visited her once since the twenty-eighth of last month, twenty-two days after the operation, she was in reality discharged on that day. The tumor weighed fifty-four pounds."

The point of special interest to me is the amazingly beneficial effect of the bichloride of mercury solution, for to it more than anything else, do I attribute the recovery of the patient without the occurrence of any symptom indicating danger. Of the several ovariotomies performed in this city by myself and others, none of the tumors were comparable in size with this one, nor were the adhesions by any means so extensive. Nevertheless, although the percentage of recoveries has been good, yet the character of the fluid secreted, when any existed, was in no respect as healthy and free from putridity as was that of the case under consideration.

Another point of importance in like cases, and one which should always be insisted upon, was the thorough cleansing of the abdominal cavity and the removal therefrom of every particle of blood and debris of whatever nature. Nor should the hand of any other than the operator, frequently immersed in the bichloride solution, be allowed within the abdominal cavity or even be permitted to touch the wound.

To those who have not as yet resorted to the use of bi-

chloride, but are still wedded to the carbolic acid in their surgical cases, let me say, try it, and I have no doubt you will coincide with me in the conviction that there is nothing comparable with it. Although this is the first ovariotomy in which I have resorted to it, yet I have frequently used it in minor operations during the past few weeks, at the suggestion of my friend Dr. Huntington of the C. P. R. R. Hospital in this city, and to say that I have been charmed with it would not half express my convictions of its highly beneficial effects. To the doubting Thomases, therefore, for I find there are still those who disbelieve in antiseptics, let me say, try it and be convinced. Cleanliness may account for much of the success in modern surgery, but cleanse as you best can, you will still find that an antiseptic, a germicide is necessary for the highest degree of success, and there is none known to the art of surgery *equal* to the bichloride of mercury.

W. R. CLUNESS, M. D.

REPORT OF SUCCESSFUL REMOVAL OF CANCEROUS BREAST.

By ELIZABETH S. SENTER, M. S., M. D.

It is not the intention of the writer of this paper to discuss the subject of cancer. The result however, in the case which is here reported, is at least suggestive of the possibility of some error in the hitherto almost unanimous unfavorable prognosis. The patient is an English woman æt. 65; when first seen in January, 1883, her right mamma was hard, nodular, enlarged, but non-adherent to the parts beneath—the nipple only a slightly pigmented spot. She had never borne children. There was no marked difference between the two mammillæ. The glands in the axilla were not involved. Two inches above the nipple, near the border of the

sternum, was a red, fungoid growth. This was two inches in diameter at it base—therefore about six inches in circumferference. It projected outwardly an inch above the surrounding skin. It was at time of first inspection, and at the moment of removal, a vicious looking fungus—indeed almost suggestive of fungus hæmatodes. It bled at the touch, and exuded an ichorous, offensive fluid. This was not excessive, but irritating to the adjacent parts, and was producing excoriations. The woman was losing in weight; suffered great pain, radiating from the breast—and was greatly depressed and discouraged; yet at all times, she manifested that peculiar vitality which may, by proper encouragement, sometimes lead to favorable results. I hope I may be pardoned here for a slight digression upon this point. It is useless to ask the why of anything. The question can never meet with any honest response which does not embody the thought, "I do not know."

That disease is in some mysterious way often influenced in its results by the mind, or by one of the attributes of the mind—the will—cannot be denied. That there are fatal cases during all epidemics—especially of cholera—where people die from fright—cannot be denied. That there are cases fatal in their very nature—as aneurism of the aorta, or accidents that so utterly destroy the mechanism and integrity of this "fearfully and wonderfully made" organism in which we live, will be admitted. Might not then the timid postulate be presented that a woman with a true carcinoma of the mammary gland—but with good digestion—good assimilation—of great hope and cheerfulness, good record, good encouragement, kind friends, abundant sympathy—with her mind made up to "have it out"—and it is taken out, the woman is happy, contented, even joyous—becomes entirely well and remains so for fifteen months, her pain and suffer-

ing entirely relieved—she enjoys her life again as she used to do. Truly it would seem that this old, old thought is worth a re-thinking.

The operation was done in the presence of the prominent medical men here, and they without exception, pronounced the growth malignant. The entire gland was removed, also the pectoral fascia and the glands along the external border of the rectoralis major muscle. On account of the situation of the growth, and the amount of skin involved, it was not possible to make so perfect an approximation of the flaps as could be wished. The classical incisions could not be made. The wound healed slowly—was very indolent, at times almost discouraging. It was dressed every day, and the enormous cavern packed with lint, sometimes carbolized, sometimes borated; sometimes tinct. benzoin. co. seemed to do best as a spur. It always looked well, and discharged a quantity of thick, healthy pus. Gradually the cavity filled up and grew smaller and smaller. It was now dusted over with calomel daily, and at the end of the fourteenth week was quite healed. The general condition of the patient was excellent all this time, and she was very cheery, patient and good.

She came to see us to-day, April 6th, with her market basket on her arm—ruddy health glowing on her cheek, and the light of gladness in her heart. The cicatrix is smooth —there are no lumps—the glands of the axilla not enlarged. The other breast is as soft as ever. There are, as yet, no signs of any return of the disease.

CASE I.—George B. æt. thirteen, was attacked June 11th, 1883, with pain and swelling in his legs. Applied for treatment for "rheumatism." Examined heart and found it beat-

ing irregularly and with a systolic murmur. Urine highly albuminous -high colored, and normal in quantity. Gave digitalis tincture in ten drop doses every three hours, and Basham's Iron Mixture (tr. fer. chlor., acid. acet. dil., liq. ammoniæ acet., syr. simp. et. aq.), in dessert spoonful doses every four hours.

June 12th—Edema less in both legs, heart still irregular.

June 13th--Edema improved; urine still highly albuminous; continued till June 15th, when heart beat regularly, no murmur and only a trace of albumen in urine; no edema.

June 18th—No albumen; heart regular and strong; no edema. Patient expressed himself as feeling as well as ever; appetite good; face plump and rosy. Had no history to account for the attack, as he had never been ill before. Has continued perfectly well up to the present time.

CASE II. -Maggie O., æt. fourteen years. Scalded the entire inner surface of right leg with hot water. Did not receive medical care until three weeks later. The leg then presented an unhealthy mass of profuse granulations, eight inches long and three inches wide. Acting on Dr. Morse's suggestion, applied bismuth. subnit. at once and bandaged leg, covering all with thick layer if cotton batting. Changed dressing daily and in three weeks the surface was healed.

KATE POST-VAN ORDEN, M. D.

Gazette Hebdomadaire de Medecine, et de Chirurgie, Paris, December 28, 1883.

NOTE ON AN EXCEPTIONAL FORM OF MEASLES, BY DR. G. DIEULAFOY, PARIS.

Dr. Dieulafoy publishes a note on a case in his private practice, and insists on the necessity of reserving one's prognosis, even in the lightest case in appearance.

"In May, 1883," says the doctor, "I was called to see a young girl, aged sixteen, whose habitual health was excellent, but who, a few days before, had taken a slight cold. She complained of uneasiness and headache, and had had the day before several light chills; she coughed a little, but she considered her illness so slight as not to make any changes in her habit or refrain from going out doors. Auscultation of her chest did not reveal the slightest rhonchus.

During the following two days, the cough increased a little, a few sibilant *rales* could be detected here and there in the bronchia, but as no other signs, no other symptoms showed themselves, I thought that, after all, the affection would very likely end in a light, simple bronchitis.

On the fourth day only, did the patient consent to remain in bed; during that day she was taken with frequent sneezing, irritation of the conjunctivæ, watery eyes, and, though there was, as yet, no trace of eruption upon the pharynx or on the skin, it became evident that measles was developing.

On the evening of that fourth day, she had a high fever, her skin was dry and burning, and at ten o'clock at night, when I saw the patient, her eyes were red, injected, watery; her cough was dry and frequent, and the thermometer indicated a temperature of 40° centigrade. There was as yet no trace of eruption.

The eruption appeared during the night, and the next morning (the fifth day), it covered the thorax, the neck and the arms, and was invading the face. The night had been restless and the cough continual, although auscultation revealed nothing but a few disseminated *rales*. During the day the patient was quiet, and the temperature, which was 39.4° in the morning, only rose to 39.6° in the evening.

On the sixth day the eruption was normal and well marked; the cough had diminished, the catarrh of the conjunctivæ

[illegible] state was as satisfactory as pos-
[illegible] all the appearances of a favorable
[illegible] temperature was 39° in the morning
[illegible]g. The menses had made their ap-
[illegible] without any modification as to the
[illegible]ce.

[illegible]ing the night following this sixth day
[illegible]'s illness was looked upon as so slight
[illegible] with her; but as the door communica-
[illegible]'s room had remained open, it is likely,
[illegible] abnormal happened, it would have been
[illegible]rtant, however, to notice that when the
[illegible] entered her room in the evening, he
[illegible]ery cold; a window in her room had
[illegible]eft open, and in connection with the door
[illegible] of a strong draft. We may suppose
[illegible]ed through its agency, was the origin
[illegible]e. The next day the aspect of things
[illegible] On the morning of the seventh day, the
[illegible]ption, at about eight o'clock in the morn-
[illegible]g with her daughter, noticed a certain
[illegible] ideas; the patient did not end the sen-
[illegible]nenced, her speech was embarrassed—in
[illegible]us; her mother noticing that her skin
[illegible]emperature, and found that the thermom-
[illegible]. The child ceased speaking and soon
[illegible] convulsions took place.

When I saw her at 10:30 o'clock, the patient was in a
[illegible] dissolution, with stertorous breathing,
[illegible] regular pulse; the pupils were contracted
[illegible] the face congested, and the lips gave issue to
[illegible] sputa. The eruption, so well marked
[illegible] almost disappeared and was superseded

by spots of a livid hue. The menses flowed abundantly. The urine was voided as usual. At 11:30 o'clock, without having recovered consciousness, the patient had another epileptiform fit.

The initiatory reason of the attack was lacking; but the tonic convulsions had invaded the whole body and clonic convulsions set in with a violence that I have never seen equaled, either in eiplepsy proper or in uremia.

After this attack resolution was not complete, and the patient had from time to time partial muscular contractions; the temperature was 38°—two degrees higher than in the morning.

Breathing was noisy and embarrassed; the trachial *rale* was constant, and the foamy sputa, issuing from the mouth and nostrils had a chocolate hue. I called in one of my colleagues, Dr. J. Simon, de l'Hopital des Enfants Malades, and we put the patient in a lukewarm mustard bath. Medication by the mouth was out of question.

Chloral and bromide of pottassium were given by the rectum, and we injected ether through the skin. This medication did not modify the state of our patient. Unconsciousness was complete and the epileptiform fits were now developed every hour, or twice an hour. At three o'clock in the morning, temperature was 40.5°. At 3:30 o'clock, Dr. Simon called in again, but everything indicated that death was near. The pulse had almost vanished, breathing was very rapid, the fits had given place to incessant convulsive movements of all the muscles of the face and of the body, the temperature had risen to 41.5°; another epileptiform fit took place—it was the last, and the young girl succumbed at four o'clock.

Such was the course of this rubeola, which had started with all the appearance of an ordinary eruptive fever and

which in a few hours carried away the patient in the midst of extremely violent convulsive phenomena. Scarlatina, more than rubeola, takes us so unaware. The ancients would have named that affection *rubeola maligna*, but the term *maligna*, so frequently applied by them to eruptive fever does not satisfy us to-day—hypotheses and theories are numerous with which we could replace it, but it is not my wish nor was it my purpose to approach them at present.

REPORT OF COMMITTEE ON OPHTHALMOLOGY.

BY WM. ELLERY BRIGGS, M. D., CHAIRMAN.

ON THE INFLUENCE OF DISEASES OF THE SEXUAL AND GENERATIVE ORGANS ON DISEASES OF THE EYE.

The occurrence of eye disease as a complication in grave constitutional lesions has long been recognized. Sufficient stress has not been laid on the fact that the eye trouble is secondary or symptomatic of the graver constitutional lesion, and neglect of this must lead to inevitable failure in dealing with the disease. The retinal patches in Morbus Brightii are only recognizable when the renal mischief is well advanced, and the objective changes in sclerosis of the cord and cerebral neoplasms are also, unfortunately, but verifications of a foregone conclusion.

In eye changes due to meningeal, gouty or rheumatic troubles, we have a more hopeful outlook; but it would be as vain to regard and treat these affections as purely local as to endeavor to even palliate the insidious approach of that unsparing foe, lues venerea, by purely local means.

In several of these diseases the eye symptoms, as an effect, follow a very definite cause, and connection is obvious and easily traced. There are some others, however, and I have no doubt, as our knowledge increases, many more will arise, in which the connection is almost impossible to discern, and yet we are compelled to admit it by force of circumstances. My attention was directed to this fact some years ago, by

noticing cases in which the onset of symptoms or the presence of the disease was attributed directly to a remote functional or organic derangement of the generative organs, and that in various instances so persistently, as to impress me with the fact that there must be a foundation for such unanimous concurrence. Since then I have watched the increasing interest and attention which are daily being paid to these phenomena, and, as in most cases the general practitioner first sees the patient, I have thought it advisable to bring before you some of the latest opinions on the subject.

There is no organ or function of the body, a slight derangement of which produces such remarkable phenomena constitutionally and by reflex as those of generation. Instance the extraordinary spasms in groups of muscles in hystero-epilepsy, so beautifully described and illustrated by Charcot. This is not to be wondered at when we consider the great nervous and vascular supply, the close connection with the large ganglia of the sympathetic, and the important functions which these organs have to perform, during the exercise of which functions their nervous and vascular supply becomes enormously increased.

Jonathan Hutchinson, in a lecture "On the Influence of the Sexual System on Diseases of the Eye," in 1876, directs attention to the fact that the connection between functional and organic lesions of the genital organs and those of sight are more real than fancied. Though hesitating to go as far as recent writers, he still cautiously and with many reservations mentions "certain suspicions which have been current in the profession as to the possibilities alluded to." Again, he writes: "Whilst, however, I believe that the cases are common in which the influence of sexual irregularities is sufficient to be very decided, to mark the patient's career in life and to produce amongst other results slight derangements

both of function and nutrition of the eye and its appendages, I see no reason to doubt that examples of serious ill results are rare." He cites several cases in which amaurosis was produced by sexual excesses, either in the natural way or by masturbation, and lays stress on the fact that it is more particularly in early life that excesses are dangerous.

Regarding the pathological changes, he says: "I do not know that I have ever seen neuritis of a definite character in undoubted relation with sexual excesses, but I have seen a few cases which were very suspicious."

Mr. Hutchinson believes that the sexual system has little influence on diseases of the eye in women. He seems to draw this conclusion from the facts that "sexual irregularities are, in the first place, less frequent, and in the next, less potent in women than in men;" that females enjoy almost an immunity from some forms of amaurosis which in males undoubtedly depend on this, and finally to their being less exposed to many of the exciting causes.

This last statement, coupled with the subsequent admission that "it is true that it is far more difficult to inquire about masturbation in girls than in men," rather weakens the statement that in the comparatively few cases in which the latter sex come complaining of muscae, usually some definite cause can be traced in the eye. He, however, believes "that there are certain forms of amblyopia and disordered nutrition of the eye which are in connection with disturbed or suspended menstruation, is highly probable; in fact, when in the female sex the generative function does affect the sight, it is, I think, more frequently in connection with menstruation than with any form of excess or irregularity of sexual indulgence."

Mr. H. has classified the conditions of sexual irregularities producing eye symptoms, under six general heads, as follows:

I.

"First, then, I will say that there is a widespread suspicion that in both sexes, but especially in males, sexual irregularities inducing debility are common causes of symptoms known as muscae."

II.

"It is believed by many that premature and exhausting use of the sexual functions may induce positive amaurosis, with more or less complete blindness. How it is done, and by what changes in the eyeball or brain, there has been as yet but little evidence to show."

III.

"It is strongly suspected that sometimes in adult men great venereal excess may result in failure of sight, sometimes with and sometimes without other evidence of spinal or cerebral disease."

IV.

"The association of impotence with blindness from one or other of the more obscure forms of 'amaurosis,' is so frequent that it is thought that there must be some link of causal connection between the two."

V.

"A few scattered cases seem to point to the conclusion that excessive masturbation may induce not only dullness of sight and muscae, but may cause the vitreous to soften and become opaque, with possibly slow inflammatory changes in other structures."

VI.

"It is credited to masturbation, that not only does it cause muscae, but that it may induce curious subjective symptoms.

which the patient describes by saying that the eye feels 'glassy and stiff,' and that sight, although it cannot be proved to be imperfect, is dull."

Mooren, of Duesseldorf, in an article (Archives of Ophthalmology), comments on the fact that it is the growing tendency of modern ophthalmology to regard all eye troubles as local, and while neglecting to consider the possibility of a constitutional cause, it often fails in their successful treatment.

Beaumeister states that there are "untold numbers of women who have disturbances of circulation from abnormal conditions of menstruation without any disturbances of vision." But as Mooren well remarks, this proves nothing, "since how many people have contracted severe colds without having pneumonia or rheumatism, and how many workmen lie down to rest on the damp ground without contracting myelitis." It remains an undeniable fact, that eye trouble does occur in connection with functional and organic disease of the generative organs, and, as it becomes worse or better, as the disease elsewhere is aggravated or ameliorated, and, finally with the other recovers or remains in abeyance, to be again set up when the remoter trouble is revived, we are forced to admit an association as close as cause and effect.

When the catamenia appear a few days after a cataract operation and concurrently with the flux, a hyperæmia of the iris, etc., takes place, it can hardly be regarded otherwise than dependent on the natural process. This, if true, where the process is normal, must of necessity be intensified where morbid actions are in progress.

"A very large number of observers agree that in inflammations of the external tunics of the eye, conjunctiva and lids, there are exacerbations simultaneous with the occurrence of menstruation. Why it is that this occurs in some

cases and not in others, we cannot explain. It is, however, a fact that no ophthalmologist who has any claim to be a circumspect therapeutist, can fail to appreciate. If a physiological fluxion, which lasts such a short time, can have such an influence, a pathological condition of menstruation must have an infinitely greater one, and indeed we find it so. Nothing could be more suggestive than the fact that in young girls who have chronic trachoma, we sometimes see, at the time of their molimina menstrualia, a new crop of trachomatous granules spring up when the menstruation is irregular or very scanty. I distinctly remember the case of a girl, fourteen years, who had an intense keratitis panosa, and notwithstanding the fact that every symptom of her molimina menstrualia was present, she could not be brought to menstruate, but nevertheless had such an inflammation every four weeks that a whole year's treatment had not the slightest effect. When her menstruation did occur, everything was changed, but the tissue of the cornea of the right eye was so transformed, that although transparent, it remained a very irregular cone." Mooren relates another case where menstruation had never been established, owing to an arrest of development of the uterus. The patient was then aged twenty-eight, and since her fifteenth year had suffered from intense interstitial keratitis, which at monthly intervals became greatly aggravated. By means of energetic treatment she had slight catamenial discharge for a few months, and concurrently with its appearance, the pain and photophobia almost completely ceased. Shortly after, the amenorrhœa returned, and with it the eyes relapsed into their old condition. Again, a patient, aged forty-five years, became affected with episcleritis when undergoing treatment for retroflexion of the uterus with a tumor of its neck. This might have been an accident, but when we find that every time a vaginal

examination was made or a pessary introduced, the symptoms became aggravated and were accompanied with intense ciliary neuralgia, we must feel impelled to trace some connection. When, however, we see that recovery having taken place, a fresh attack of uterine trouble coming on in a year's time was followed by episcleritis of the other eye, that again cause and effect manifest themselves is obvious.

In a very carefully compiled table, by Ludwigs, we find that sixty-seven and a half per cent. of certain classes of eye diseases occurring after puberty were in women, whilst only thirty-two and a half per cent. are tabulated for men. This "shows beyond a doubt that there is a predisposition on the part of women to such diseases."

As congestion and inflammation of the organs of generation tend to produce the same condition in the eye, so irritation and hyperesthesia manifest themselves in sympathetic retinal implication.

In two cases of masturbation of many years standing, the clitoris and labia were extremely sensitive to the touch. In one case examination caused serious dyspnœa. Here we find that photophobia and loss of accommodation were the symptoms that first directed the attention to the primary trouble. In the case of a French woman, who was troubled with angioma polyposum, there was intense retinal hyperesthesia preventing her from using the eye in moderate light. She was hyperopic, but could not wear glasses owing to the sensitiveness of the scalp. Local treatment of the angioma polyposum and administration internally of nerve sedatives procured relief of these symptoms.

"Landolt assumes four conditions of visual disturbances in cases of ovarian irritation, described by Charcot.

"1.

"The eyes show no objective symptoms, either externally

or ophthalmoscopically. The two eyes differ, however, on functional examination. On the well side vision is normal, but there is narrowing, and especially of the color field. The eye on the diseased side shows a diminution in all the retinal functions to an equal degree.

"II.

"There is a second condition or stage in which the objective symptoms are more pronounced on the diseased side, when they begin to appear also on the well side.

"III.

"In those cases where the retinal functions are very much reduced, viz, where the fingers can hardly be counted, and the visual field is reduced to within a few degrees of fixation point, the ophthalmoscope shows distention of the retinal vessels with a serous transudation.

"IV.

"Once he found a partial atrophy of the optic nerve of both eyes in addition to the foregoing symptoms. I have often seen a commencing atrophy after a long standing retinal hyperæsthesia. It is not even very rare that we see a detachment of the retina brought about by a congestion of the head, from ovarian reflex irritation of the vagus. Last Winter I had a patient who presented the whole complex of symptoms from this condition, as follows: they sometimes lasted less than two days, and were always very painful. Her general condition was good. In her right eye she had anæsthesia of the retina, with a rosy injection around the papilla. She could only read Jæger number three, and her field was concentrically limited to four and one-half inches. She had lost her sight in the left eye a number of years ago; it showed advanced atrophy of the nerve and a

partial detachment of the retina. Centrally she could still count fingers at two to three feet; she did not recognize red or green. After a long treatment the sight of right eye was restored.

The foregoing relates to chronic diseases of the generative apparatus.

As in acute pneumonia, pleurisy, etc., where the ranges of temperature are high, we find "retinitis, choroiditis and opacities of the vitreous" in parametritis with possible ovarian extension, we may naturally expect graver ophthalmic lesions. We must thoroughly understand the vascular and nervous supply of the pelvic organs "before we can appreciate how a venous congestion, working on the occipital lobes can bring about a fulminating attack of blindness after a sudden cessation of the menses. Assuming the truth of Ferrier's dogma, that the visual centers are situated in the gyrus angularus of the occipital lobes, we can understand some of the pathological phenomena not otherwise explicable." Instance a case of Samuelson's: "A young woman, aged twenty-one years, had to work standing with her feet in water at the time of her menses. The sudden menostasis caused a disagreeable sensation of pressure behind the eyes the same evening. Within a month she was completely blind. The ophthalmoscope showed nothing but a strong retinal reflex and slight engorgement of the veins. In another week her sight returned."

Mooren says: "I remember again where a suppression of the menses did not interfere with sight, but affected the facial and abducens of the left, and rectus internus of the right eye."

The observations of Lang and Rokitansky show that a continued hyperæmia of the brain leads to an exudation of crude gelatinous connective tissue, which, when cicatrizing

causes destruction of nervous elements in the brain and cord. Rokitansky has demonstrated the same condition in the olfactory, optic, and spinal nerves, etc.

"As Cohnheim has demonstrated, the lymph vessels serve as a means to carry off all transudation from the blood vessels. The greater the venous stasis the more important the lymph passages become, and at the same time the less they are able to carry off transudations, so that œdema is the result. Thus it happens that every optic neuritis can develop into a true neuro-retinitis by an extension of accompanying œdema. The acute forms of neuro-retinitis, which we see so often after extensive hemorrhage in abortion, placenta previa, uterine tumors, etc., are almost always characterized by the bad effect they have on the sight. Thus primary retinal anæmia will cause serous transudations in the neighboring tissues as an anatomical necessity. The destructive influence of transudations is very great, and the retina and optic-nerve soon show it in atrophy. The sudden loss of blood is the essential cause, as it occurs just as frequently where the hemorrhage arises from other causes. The emptying of the blood vessels destroys the function of the retina so rapidly that blindness comes on either at the time of the hemorrhage, or immediately afterwards. All extensive hemorrhages have an effect on the sight—sometimes only in the shape of accommodative or muscular asthenopia; sometimes in contraction of the range of accommodation; again, in diminution of vision, either transitory or permanent, they may also cause hemeralopia. In fact, we meet with all kinds of changes, from a simple transitory impairment of vision to a progressive atrophy of the optic nerve. Of the same character are the disturbances which cause transitory retinal exudations with rapidly disappearing amaurosis during pregnancy, or shortly after delivery, when the circulatory impediments lead to al-

buminuria. If the loss of albumen from excessive hemorrahge has passed beyond a certain limit in reducing the vitality of the organism, amblyopia may withstand medication, the substance of the optic nerve wastes away, and amaurosis be the ultimate result. The nerve atrophy may continue when the primary cause has been removed, and this result is particularly to be expected in weak constitutions where the heart's action has been enfeebled by physical or mental trouble."

"It is remarkable that not all the alterations in the optic nerve and retina are accompanied by opacities of the vitreous. When these are present, we find as their causes, retinal hæmorrhages, or disturbances of circulation in the uveal tract. These exercise an obnoxious influence on the nourishment of the lens system, favoring the development of cataract. I have published my experience on this point, stating that the formation of a nucleus was but little marked, the lens substance was semi-soft, and had a bluish-white tinge. The occurrence is so constant that I consider such conditions as an indication of marasmus. It makes its appearance in the middle age of life after excessive metrorrhagia, or after confinements. It occurs also in young women who during the period of lactation are affected with a transudation into the vitreous, followed by opacity of the lens, beginning at the posterior pole. Since the above publication, my further experience warrants me in saying with more emphasis, that a loss of albumen leads to a hyperæmic condition which not only brings on cataract, but also has an influence on its consistency. It is an old observation to find an issue of fluid vitreous in extracting such cataracts, and these eyes require the greatest care during after treatment, lest a supervening choroiditis do away with the good results of the operation.

Priestley Smith in an article (*Ophthalmic Review*, *Janu-*

ary, 1884), says: "Attention has lately been directed by several writers to the important but somewhat obscure subject of loss of vision in connection with disease of the sexual organs." He cites a case, that of a female, in which "one eye became suddenly and permanently blind during a fainting attack induced by a painful disorder of the pelvic organs." She had been ordered to use a syringe, but after every introduction she felt faint and suffered from temporary blindness. As there was danger of her other eye becoming affected, it was decided to remove both ovaries and fallopian tubes. The operation having been successfully performed, she suffered no further pain or trouble—demonstrating very definitely the remote cause of the ophthalmic lesion.

The therapeutic considerations of the foregoing conditions is a subject far too extensive to enter into with the limited time at my command.

Nearly all the morbid conditions of the sexual system in male or female may react injuriously on the organ of vision, and from their more complex structure, such coexisting disease is more common in the female than male.

Any extended observation would require a more or less intimate review of the nosology and pathogenesis of most obscure pathological phenomena, which are quite beyond the range of the ophthalmologist. I have endeavored in the foregoing pages to show the vast and growing importance that the foremost men of the day attach to the considerations treated therein, and if I can arouse some slight attention to a subject too often overlooked, I shall feel that my "labor has not been in vain."

In every branch of medicine and surgery an accurate diagnosis is of first importance, and the continued unsuccess of haphazard treatment must convince us of the necessity, if possible, of arriving at the "fons et origo mali." In marked

contrast to the failure of remedial measures, when the cause has been neglected, has been shown the success that attends the removal of the obscure source of trouble. The ophthalmologist, who, as an enlightened physician, suspects the influence of remote conditions, should not hesitate to obtain the opinion of his brother specialist—the gynecologist—and seconded by his efforts, he will have the satisfaction of finding an obscure and intricate case readily yield to the light of modern diagnostic skill.

JEQUIRITY.

The introduction of jequirity bids fair to provide a specific for certain forms of that most obstinate affection, trachoma, and its unfortunate concomitant pannus. This agent was first employed by De Wecker, at the request of a patient whose residence in Brazil had familiarized him with it as a common domestic remedy. No new remedy has of late attracted more attention than this, and numerous experiments have been performed and published, so that already the literature on the subject is quite extensive. The general prevalence of the disease, and the apparently rapid and certain success which follows the application of jequirity, seems to promise that, as our knowledge of its properties increases, a more careful attention to ascertained indications will be given, and results obtained which will exceed the most sanguine anticipations.

Several unfortunate results have been published. This must be expected in the use of so powerful a drug, whose properties were almost unknown, but it is hoped that as the indications for its use are more clearly defined, these disastrous effects can be guarded against.

Since Dr. De Wecker first called attention to jequirity ("Klin. Monatsblætter fuer Augenheilkunde"), ophthalmolo-

gists in all parts of the world have tried it, and considering want of knowledge as to the indications, the results are surprisingly unanimous in its favor. Through the enterprise of Dr. H. Knapp, the latest views of many leading specialists were published in the March number of the *Arch. of Ophthalmology.* I will not detain you with a history of its discovery, but will describe De Wecker's present method of application and the cases for which he considers it appropriate treatment:

First, the solution should be prepared fresh daily. This may be done as follows: after the husks have been removed, the seeds are ground to a fine powder in a coffee mill. Cold water is then added and the whole is allowed to stand for three hours. It is then filtered, and the product is ready for use. This infusion is slightly opalescent, and must have the characteristic odor of fresh herbs. In order to obtain uniform results, the solution should be prepared fresh daily, as it decomposes rapidly, giving off an offensive odor, and is thereby impaired in its efficiency.

Different oculists employ solutions widely varying in strength. De Wecker uses an infusion of from three to five per cent., while Coppez, in his extensive wards devoted to cases treated with jequirity, applies a ten per cent. solution. During the early use of the remedy several applications were successively made to the conjunctiva, but recently De Wecker and others have reduced the number to one--it may be necessary to repeat it if a sufficiently high degree of inflammation has not been obtained. The solution is applied only to the palpebral conjunctiva, unless there is pannus, in which case the ocular conjunctiva is also touched. The bad results which have occurred may generally be traced to the too frequent application of a strong solution. Although a one or two per cent. solution may be frequently

applied without any unpleasant consequences, the same is not true of one of five or ten per cent. If the result of the first application has been insufficient, a second may be made after an interval of forty-eight hours. If suppurative inflammation ensues, this should not be attempted for two or three weeks, when, if the granulations have not disappeared the infusion may be again used, to be followed at an equal interval by a third application, if necessary.

Dr. De Wecker's experience teaches that it should not be tried in acute granulations, or in those due to purulent ophthalmia. In these the characteristic jequirity ophthalmia does not develop, but a higher degree of purulent inflammation is produced which may even destroy the integrity of the cornea. Experience abundantly proves that this remedy should be employed only in cases of dry granulations.

Dr. Coppez, who has used the drug extensively, read a paper before the Brussels Academy setting forth the results of his experience. De Wecker quotes the following from his address: "In conclusion I must acquit myself of a pleasant duty in delivering the message intrusted to me by one hundred and fifty Belgian trachoma patients, cured or improved with jequirity, in expressing to Dr. De Wecker, the courageous defender of jequirity, their warmest thanks. Thanks to De Wecker, the barbarous method of inoculation with the bleenrrhœic pus has ceased to exist. This testimony of mine is free from suspicion, as I have employed this inoculation more than fifty times, and have often had occasion to appreciate its excellent results."

The favorable effect of jequirity upon ulcerative pannus leads to its use in other ulcerations of the cornea. Dr. Menadro, Wecker's assistant, reported the results of his experiments upon three hundred cases. He concludes, "that (1), torpid central corneal ulcers, especially those due to cic-

atricial keratitis; (2), torpid scrofulous pannus, with or without ulcers, and (3), the sclerosing degenerations after parenchymatous keratitis, may be successfully subjected to this treatment."

De Wecker has had excellent results in some cases of diffuse keratitis.

Dr. Derby of Boston, reports very favorably on the subject. In the Massachusetts Charitable Eye and Ear Infirmary, about three hundred trachoma patients were annually treated. The majority of the beds were occupied by this class of patients, but in three months use of the new method there were but few patients remaining in the hospital with granular lids. No stronger evidence could be required to prove that this treatment surpasses all other known methods of dealing with this obstinate affection.

Dr. Derby says: "We are unable to corroborate De Wecker's experience with regard to the immunity of the cornea from participation in the process induced by 'jequirity.'" This may be readily understood from the fact that De Wecker uses the solution once, while Dr. Derby gives a two per cent. infusion into the patient's hands, who bathes the eye three times daily for three days. The results of such applications, cannot, of course, be uniform, as greatly varying quantities reach the conjunctiva.

At the meeting of the "Ophthalmologischen Gesellschaft," at Heidelberg, last September, the subject was thoroughly discussed. Dr. Von Hippel read an interesting paper and stated the result of his experience to be as follows: "That it is useless in fresh granulations with much hyperæmia of the conjunctiva; but on the contrary, exerts a favorable influence over chronic trachoma with or without pannus, as well as in shrunken conjunctiva and thick pannus." V. Hippel believes contrary to Wecker's statement, that there is great danger to the eye in secondary ulceration of the cornea.

Among the several cases treated by Dr. H. Knapp, there were three which resulted disastrously from central perforatting ulcers. He fears that the white cicatricial condition of the conjunctiva, caused by the remedy, may leave the eye in an unfortunate position. Many of his cases have resulted in speedy cure, and he tabulates his views on the subject as follows:

"1.—Jequirity cures trachoma more quickly, but less safely than other remedies."

"2.—Its action is highly beneficial in most cases, but neither uniform nor always controllable."

"3.—The cure of trachoma by jequirity as well as by nature and other remedies, is accompanied by more or less atrophy of the conjunctiva and the formation of cicatricial tissue."

"4.—The greatest danger from the use of jequirity consists in the occasional development of a severe diphtheritic conjunctivitis followed by pyorrhœa and more or less extensive destruction of the cornea."

"5.—The use of jequirity ought to be restricted to cases of old, intractable pannus, until cautious experimentation has determined the conditions under which we can obtain the benefit of this powerful remedy divested from its danger."

Dr. Gruening has also had extensive experience with the drug, and his results are not altogether favorable. In the tabulated statement of thirty-eight eyes treated, nineteen were reported cured, six improved, and the remainder not improved or relapsed after a short interval. Dr. G. derives the following propositions:

"1.—The use of a five per cent. infusion of jequirity is [illegible]nded with danger to the cornea."

[illegible]—The action of the two per cent., two and a half per [illegible]ve per cent. infusion of jequirity upon granula

tions is inconstant. The granulations are not affected at all or are changed into dense cicatricial tissue. Their disappearance without conjunctival alteration is rare."

"3.—Jequirity acts more favorably than any other known substance upon the pannus, accompanying or following the granular conditions of the lids."

There has been considerable discussion in regard to what the active principle of jequirity is. Dr. Sattler—with others—maintains that it is a bacillus which he discovered in infusions only a few hours old. These bacilli were found in nearly all solutions, as they were then used, being kept much longer than in the later use of the remedy. It is now known that the remedy is active before they are developed, and Dr. Weinemann (*Transactions Societe Francaise d' Ophthalmol ogie*), has extracted a vegetable ferment which has the characteristic effect of the infusion. This fact, if confirmed by further experience, will, of course, disprove Sattler's theory.

My experience with jequirity has been so limited that I will not detain the Society by detailing it, but hope before another year to be able to give more definite views in regard to the indications for its use from practical observations.

THE ELECTRO-MAGNET.

This very efficient, useful and comparatively new instrument is coming into quite extensive use. It is perhaps the most important invention recently introduced into opthalmic surgery, and will, I think, continue in use as long as our branch of surgery is practiced. It often fulfills a purpose which no other instrument can, and its results are frequently brilliant.

Two years ago I had the honor of reporting the first case in which the instrument was successfully used upon the

Pacific Coast.* Since then Prof. Barkan (*Pacific Medical and Surgical Journal*) reported the second operation. Since my last report I have operated three times—twice with favorable results and once failing to extract the foreign body.

Mr. J. M. presented himself at my office a few hours after having been struck in right eye while working at his trade as a blacksmith. The eye was found injected, freely lachrymating, painful to light, with vision reduced to little more than perception of light. There was a small corneal wound slightly below a horizontal diameter, the pupil contracted, and only a retinal reflex could be obtained with the opthalmoscope. When the pupil had become dilated with atropine, the wound of the lens could be distinctly seen, but the foreign body could not be detected. On the morning of the next day an incision was made well posterior to the ciliary region between the inferior and internal recti muscles. The electro-magnet was connected with twenty cells of Fleming's battery, the point of the magnet introduced into the fundus of the eye, where it was moved about slightly and held in the vitreous for a moment, when, upon withdrawing it, the steel was found attached to the point. Atropine was instilled, ice water and light compress applied. The inflammation which followed was of a moderate degree, and in about four weeks the eye was free from irritation. There remained traumatic cataract, which could be operated upon, if necessary, at some future time.

Mr. W. presented himself on the 7th of last August with a wound of the left eye in the ciliary region. The injury

* After reading the above to the Society, Professor Wilder stated that in [illegible]ction with his colleague, Dr. Powers, he had used the apparatus some [illegible]viously in several cases. All I had claimed was that I had *reported* [illegible]*ul* case on this Coast.

had taken place the day previous. There was considerable inflammation and exudation of blood in the eye. The wound was enlarged posteriorly and the point of the Magnet was introduced, but failed after two attempts to extract any foreign body, and I therefore enucleated the eye. The steel was found imbedded in the posterior sclerotic coat.

My fourth case was Mr. Thos. B., employed in the C. P. R. R. shops in Sacramento, who received an injury to the left eye on the 20th of last October. The patient was seen the evening of the accident. The cornea was wounded in about the center of the lower hemisphere, and the foreign body could be seen lodged in the iris near the pupillary margin. The next day, with the patient under the influence of an anæsthetic, a corneal incision was made near the sclerotic border, and a point of the electro-magnet, the coil of which had been connected with twenty cells of Fleming's battery, was introduced into the corneal incision. Before the point of the magnet reached the foreign body it was seen to jump from its position on the iris to the needle and was readily withdrawn attached to the instrument. A compress bandage was applied and the next day atropine was instilled. The eye improved rapidly without pain, and in ten days all symptoms had subsided with perfect vision.

OPTICO-CILIARY NEUROTOMY.

This operation, which has been much discussed during the past few years, has fallen into pretty general disuse. Still a few operators who have had extensive experience claim favorable results for it.

From my own personal experience I can say nothing in regard to it. In the cases which have come under my treatment, I have for various reasons performed the more radical operation of enucleation. I have not even experimented

with my double scissors, which I consider an excellent instrument, if a person performs the operation at all, as with it a section of the optic and ciliary nerves can be removed without cutting any of the muscles of the eye, and with very little violence to the eye itself. The literature of the subject is quite extensive and the deductions various. Dr. Wadsworth reports fifteen cases in which he had operated. In ten the operation was successful in arresting pain in the blind eye and sympathetic irritation in its fellow. In seven cases the cornea retained its transparency ; in two it became opaque or ulcerated, and suppurated in one. The sensibility was restored to a greater or less extent in six out of the fifteen cases.

Dr. Landsberg reports twenty-three cases with results as follows: Enucleation six weeks after first operation in one case; necrosis of cornea in three; keratitis in one, and return of corneal sensibility in four. In sixteen out of the twenty-three cases the object in view was attained.

Dr. Bunge performed the same operation fifteen times with more favorable results. Suppuration of the cornea occurred only once, necessitating enucleation.

Leber reports a case of sympathetic ophthalmia setting in after neurotomy.

Hirschberg has observed nine cases in which corneal sensibility returned, and five where enucleation was necessary after the first or second neurotomy.

Poncet considers the free hemorrhage into the orbit and the resulting protrusion of the eyeball of little importance. The blood is rapidly absorbed and the effusion can be largely prevented by the compression bandage.

Dr. Poncet states the following as advantages of the operation: "Employed early it is a means of preventing the occurrence of sympathetic ophthalmia. It may be employed

to remove pain and tenderness of a blind eye. It is justifiable as a means of rendering the eye non-sensitive, and thus preparing it for the reception of an artificial eye. In such cases the results are good and there are no accidents, pain soon disappears, the patient resumes his avocation, the eyeball is well prepared for the artificial eye; in short, the object desired is attained. On the other hand it is less useful as a means of arresting sympathetic mischief when this is already established, and like enucleation, it may be considered contra-indicated in presence of acute inflammation, whether of the first affected eye or its fellow."

Although believing the operation will never attain a very extensive application, we still think in a carefully selected class of cases it will often be preferred to enucleation. We frequently meet patients who will not submit to enucleation, who would gladly avoid the dangers of sympathetic trouble by this more conservative operation. There are also numbers of cases in which we cannot urge immediate enucleation, but still are fearful that sympathetic inflammation may take place without premonition. In such cases we would feel less compunction in performing this substitute for enucleation.

XANTHELASMA PALPEBRARUM.

This rare affection was first described by Rayer. Although not strictly speaking an eye disease, it usually appears first within the orbit. It is a neoplastic growth within the corium, and appears as straw colored velvety patches, slightly elevated above the surface of the surrounding skin. These peculiar patches nearly always develop primarily on the lids, after which they often appear in the folds of the neck or extend over the face and body generally.

Liver troubles are very common complications of the dis-

ease. Among thirty-seven cases collected by Hebra and Kaposi, icterus was present in fifteen, while among thirty-six reported by Hutchinson, jaundice was noted in only six, and in all these it had passed off before they came under observation. In Hutchinson's cases the diseased patches were confined to the lids. From his observations he concludes, that it never occurs in children--the youngest in the list being twenty-eight years old when it first made its appearance. In five cases in which post-mortems were made jaundice had preceded the appearance of the disease. In a case of Murchison's, the liver was found considerably enlarged as the result of the early stage of cirrhosis.

The diseased patches show no tendency to disappear, either of themselves by external application or internal treatment. When the diseased surface is not too extensive, excision of the patches is the only treatment that can be advised, but where this is inadmissible, there is no hope of benefit from any known method of treatment.

Mr. B., aged thirty-four, of good habits and good family history, presented himself to me last June with five cream-colored spots on the skin of the lids. These patches varied in size from one-third of an inch to one line in diameter. They were almost symmetrical, with the exception that there was one more patch upon the right upper lid than on the left. They were of soft, velvety feel, and slightly elevated above the healthy skin. He had noticed them appearing and slowly growing during the past year. A couple of months later, another patch appeared on the left lid, exactly corresponding in position to the second spot on the right lid. From the known symmetry of the growths I had predicted the appearance of this patch. The patient had enjoyed good health with the slight exception of occasional malarial attacks. He had never been jaundiced, but had noticed on

several occasions, after having sweated freely, that his red flannels were discolored a very dark brown. Had never had any other indications of hepatic trouble.

Four months after, during which time the disease slowly extended, I operated by removing two patches at a sitting without an anæsthetic. It was thought the result would be better if the operations were done at intervals, as the nutrition of the skin in the immediate vicinity might not be favorable to repair. Each patch was removed by an elliptical incision and the healthy skin brought together with fine silk sutures. The wounds healed nicely, and the skin being rather loose about the orbit, no ectropium resulted. The largest portion of skin removed was a little more than half an inch in its longest diameter, and was taken from the right lower lid, beginning near the internal canthus. At date of writing the cicatrices are barely perceptible, and there is no indication of recurrence.

CATARACT OPERATIONS.

There seems to be no end to the modifications of the various cataract operations which are brought forward as improvements on older methods of extraction. The most important of the recent changes, is that advanced by Pagenstecher of removing the lens in its capsule. In properly selected cases this seems to produce the best and most permanent results. I spoke more at length of this method in my last report.

Dr. Andrews, of Shrewsbury Eye Hospital (*British Medical Journal*), has been operating during the past few years according to a modification of Pagenstecher's method. Much of his advice is worthy of consideration. I will therefore present a short synopsis of his description of the operation.

The sensitiveness of the eye in regard to the influence of

atropine and eserine should be tested and the size of the cataract noted in order to regulate the size of the corneal incision required, and to see if the pupil can be dilated to admit of the passage of the lens without an iridectomy and without bruising the iris.

If the vessels are degenerated this operation is not advised, as the large corneal wonnd required would so much lessen the eye tension, as to increase the tendency to hæmorrhage from the choroidal vessels. The evening previons to the operation, atropine is instilled sufficiently to produce moderate dilation of the pupil.

Antiseptics are generally employed; ether is preferred. It should be pushed to complete anæsthesia, so that there is no reflex action when the eye is touched—if necessary, it should be assisted by a hypodermic injection of morphia. If the use of ether is accompanied by blueness of the face with probable engorgement of the choroidal vessels, chloroform should take its place. The danger from loss of vitreous is far less under complete anæsthesia than without it.

The doctor's experience with antiseptics has been contrary to that of Pagenstecher—that they are objectionable rather than otherwise. He constantly keeps a basin of water boiling during an operation, in which he inserts all instruments before using them. On account of the pressure of the speculum upon the eye, it has been abandoned, and in its stead a carbolized ligature is inserted through the skin of the lids by which they can very readily be beld open either by the operator or an assistant. This is entirely out of the way; it causes no pressure and allows the eye to be instantly opened or shut as required.

SECTION OF THE CORNEA.—This is commonly made near the corneo-sclerotic junction, the extent of the incision varying from five-twelfths to one-third of the circumference of the

cornea, according to the size and condition of the lens; when hard, a large corneal opening being required, and vice versa. A modified v. Graefe's or a Beer's knife is used. The upper section is selected if the eye-ball is in good condition, if there be no intention of using the scoop, or if an iridectomy is to be performed. The lower section is made if the tension is minus; the temporal or lower section, if the scoop be used.

Iridectomy, which diminishes the conservative aim of the operation, is only practiced when there is considerable tension posterior synechia, a very shallow anterior chamber, or when the pupil is not dilatable by atropine, or only slightly so.

EXTRACTION.—To render the use of the scoop unnecessary the suspensory ligament is detached by a new method. With a piece of stiff wire, about one inch in length, mounted on a handle, having the point smooth and round, and a line to half a line of its extremity bent at a right angle, an instrument has been formed, to be used in the following manner, either before or after the section: If before a minute opening is made in the cornea close to its margin by a small bent broad needle, the instrument is passed into the anterior chamber sidewise over the lens and under the iris until it reaches the distal margin; the point is now turned downward, the ligament pierced with ease, and following the edge of the lens as a guide, it may be torn to any extent the operator may desire by rotating the eyeball. If, after the section, the instrument is introduced through any part of the opening found most convenient, and whichever course is followed, being under the iris, that structure is scarcely touched. The lens being thus quite free from attachments—for the slight adhesion to the hyaloid fossa is of no importance—and the patient perfectly quiescent, by slight pressure with the tortoise-shell curette, it may be generally eased through the corneal opening without the aid of any extracting instrument.

If a moderate amount of pressure fails to evacuate the lens, a scoop made according to his direction is inserted in front, or if the vitreous be too fluid, behind the lens, and thus extracted.

The lens being removed, the upper lid is slightly rubbed and then raised, when, if the pupil be round, central, and of normal size, no application is used; if dilated, eserine is instilled. A strip of isinglass plaster is put over the lids, followed by a piece of lint dipped in carbolized glycerine, and over that a pad of cotton wool. The whole is kept in position by as much pressure as is agreeable to the patient, by a carbolized gauze bandage.

Dr. Andrews claims the following advantages for his operation: that it lessens external pressure and prevents internal bruising; that it requires no speculum, but provides an easy and safe way of opening the lids; that it does not mutilate the iris; that the use of the scoop is the exception; that it seldom, if ever, ruptures the capsule, the prevention of which is the chief safeguard in all such operations; and that this mode of operating gives visual results equal if not superior to any other method of extraction, with the impossibility of secondary cataract.

Dr. H. Galezowski, of Paris, describes (*London Lancet*) a method of extraction without performing iridectomy. He was led to try this method from the frequency of suppuration of the cornea and iritis after the modified linear operation. The steps of his operation are as follows: "The patient is placed upon an operating table or bed, and his eyelids separated by my articulated spring speculum. I then seize the conjunctiva just below the cornea with a fixation forceps, and gently draw the eye slightly downwards. I then puncture the transparent cornea just as its junction with the sclerotic, with a very narrow bladed von Graefe's knife, and at

a point three mm. above the horizontal diameter. Pushing the point of the knife downward to the border of the pupil, which has previously been dilated, I press on the capsule, incising it from below upward, then slightly withdrawing the knife, I push it into the transverse diameter of the capsule, which I then incise in its entire breadth, after which I make the counter puncture at the opposite corneal border at a point also three mm. above the horizontal diameter. Then inclining the edge of the knife slightly forward, I cut the corneal flap in such a manner that its summit shall be two mm. distant from the superior sclerotic margin. This step in the operation terminated, I remove the fixation forceps and spring speculum, and let the patient rest for a few seconds. I then continue the operation by elevating thoroughly the upper lid with my little finger, which, as well as the curette, presses upon the sclerotic border of the incision whilst the patient looks strongly downward. With the thumb of my left hand I gently press upon the inferior border of the cornea, and then the lens is seen first to engage in the iris, then in the incision, and, finally, to emerge from the eye.

"It frequently occurs that after the lens has emerged, the iris returns to itself, and the edges of the incision come into apposition. In other cases the iris protrudes, and must be replaced in the anterior chamber by a fine silver stylet. If any of the cortical substance of the cataract remains in the pupil, it is removed by a curette, which is introduced several times into the anterior chamber or the pupil. The operation being finished, and the eye being open, I turn the carbolic spray on to the eye, and dress with carbolized cotton-wool, and bandage both eyes. As a rule the coaptation of the wound takes place in twenty-four or forty-eight hours. In one case it did not take place for six days.

On three occasions there occurred slight attacks of iritis on the seventh, eight, or tenth day, which easily yielded to antiphlogistic treatment, and on one occasion severe iritis appeared within twenty-four hours, but yielded to douches by the carbolized spray and to the application of leeches.

"The final results after extraction by this method are relatively superior to those I obtained with iridectomy. Since my recent experience has demonstrated to me the considerable advantages of cataract extraction without iridectomy, I never touch the iris except in the following exceptional cases:

"1.—When during the incision of the cornea, the iris bulges forward in front of the knife, and it is wounded.

"2.—In traumatic complicated by posterior synechia.

"3.—In cases where the lens, covered by the iris, does not emerge in the incision.

"4.—I excise the iris when I perceive that it has been torn during the passage of a hard and voluminous lens."

REPORT OF THE COMMITTEE ON MEDICAL LEGISLATION.

BY J. GREY JEWELL, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: As Chairman of your Committee on Medical Legislation, I have not had a sufficiently favorable opportunity to suggest to members of the profession in the State Legislature, new amendments to the law now governing the practice of medicine in this State. So far as my consultations with our friends have gone, it is thought to be the best law we can get at the present time, and while imperfect, it certainly does contain many excellent provisions. One of the best of these is that every person desirous of practicing medicine in this State *must present a diploma to the Board of Examiners, and make affidavit to its genuineness, and that he is the identical person therein named*, before a certificate to practice is granted. And even after a certificate is granted, the Board of Examiners are empowered to revoke the same for "unprofessional conduct," and they are made the judges of what constitutes such conduct.

It would be well if we could go a step further, and embody in our law a feature of the new law governing the practice of medicine in the State of Virginia, which provides that every applicant for a license to practice medicine in that State *must pass an examination by the State Board of Examiners!* This is a radical, and, in my judgment, a wise change for the

better. But it is thought that public opinion in this State is not quite advanced enough for such compulsory legislation. However, by constant agitation of the question in our medical societies, medical lectures, and medical journals, it is hoped we will soon bring about such a state of public sentiment as will render it possible to enact a new law, including such compulsory clauses. In the meantime our best efforts should be directed to the thorough enforcement of the law as it stands at present.

Considering the suggestion of Dr. Orme, in a previous report, I would earnestly recommend, that in the appointment of the next Committee on Medical Legislation, and thereafter, at least three of its five members should be residents of the capital of the State, as their facilities for taking prompt legislative action must be superior to those of members residing at greater distances. And I would further recommend, if the laws governing this Society will permit, that our honorary member, E. R. Taylor, M. D., now practicing law in this city, be made one of that committee, or be requested to coöperate with them, because of his thorough knowledge of both subjects, and his well known sympathy with our objects.

It is found somewhat difficult to get persons to make complaint against those who violate the provisions of the present law. This is caused, in a great measure, by no inducement being offered to persons who possess the requisite knowledge, to inform against the offender. Therefore, I would recommend, that at the proper time, an amendment be introduced giving half the fine to the informer, hoping in this way offenders may be brought to justice.

I feel it to be my duty to call the attention of this Society, and in an especial manner the attention of the next Committee on Medical Legislation, to the necessity of a law prohibiting the indiscriminate sale of certain drugs, which should

only be sold on a physician's prescription. The Act of the Legislature, approved April 16, 1880, provides that the drugs therein named shall only be sold when the purchaser understands the effect of the drug, and that the package shall also have the name of the drug and the word "poison" written or printed thereon; otherwise, it must be prescribed by a physician. It is a fact well known to most medical men in this city, that even these simple precautions are utterly ignored by many of the druggists of San Francisco. It is almost entirely owing to this disregard of the law that we find in our midst so many opium smokers, morphine consumers, chloral drinkers, and chloroform inhalers. The degrading habit of using these destructive drugs is, as yet (because of their comparatively high price), confined to persons in the higher walks of life, and to the more intelligent portion of our community. But the great facility with which they can be obtained is carrying off, every year, many of the very flower of our population of both sexes.

I would therefore recommend further amendments to the law governing this matter. The sale of these drugs, or their use, should be prohibited, except on a physician's prescription, by his advice, and under his control. The penalty for breach of the law should be severe—both fine and imprisonment in the State Prison, and prohibiting the offender from engaging again as druggist, chemist, or apothecary, in this State, and that one half of the fine shall be paid to the informer. By making the indiscriminate sale of these drugs a felony, a State Prison offense, this great evil will be stopped, and many valuable lives saved.

At the same time it would be in the line of advancement if some action could be taken by way of amendment to the present law, to prevent druggists from prescribing for the sick. This is constantly being done in San Francisco, much

to the detriment of the profession and to the increased injury of the sick.

In the amended Act passed April 1, and approved April 3, 1878, Section six, as published in the "Catalogue of Physicians and Surgeons, 1883," is defective. In the third line it reads, "or any person who shall, by writing or printing, or by any other method, publicly profess to cure or treat disease * * * * shall pay a license of one hundred dollars a month." The first part of the section applies to "itinerant venders;" and Section twelve of the Act approved April 3, 1876, to which this Section six is an amendment, alludes wholly to "itinerant venders;" but as amended, it applies to "any person" who "publicly professes to cure or treat disease," which has been construed to include every physician and surgeon in the State, and makes them liable to a license tax of one hundred dollars per month, should the license or tax collector see fit to enforce it. This section of the law should be restored to its original purity, as found in Section twelve, Act approved April 3, 1876. It is evidently the work of the enemy.

OLD AND NEW CODES.

BY A. M. WILDER, M. D.

MR. PRESIDENT AND MEMBERS OF THE CALIFORNIA STATE MEDICAL SOCIETY: The controversy that has been going on, between the supporters of the old and new codes, in New York, and notably in New York City, during the past three years, and which has finally culminated in a complete separation of the two parties, with the formation of separate County and State Societies, has been watched with growing interest by the medical profession of the entire country, and has excited much comment from the secular press and general public as well.

At first, it was not believed that men, eminent in the profession, teachers in the leading medical schools, and editors of the leading medical journals, could be in earnest in advocating the breaking down of the natural barriers which exist, and always must exist, between the broad domain of medical science, and the parasitic outgrowths, which have sprung into existence under the nomenclature of the various "pathies."

That this movement, undertaken by the advocates of the new code, is in the nature of a genuine secession from their association, and affiliation with the American Medical Association, and so recognized by both parties, is made evident by a brief review of the history of the movement.

The first proposition made in the New York County Society was for the abolishment of all codes; this was subse-

quently modified by the adoption of the so-called new code, under which banner the local organization was captured.

At the succeeding annual meeting of the State Society, with only seventy representatives of the profession of the State present, the new code was adopted by the requisite two-thirds majority. Delegates (representative of this new departure in principles), carefully selected from among men eminent in the profession, were elected to attend the meeting of the American Medical Association held at St. Paul, Minnesota, in 1882. These delegates failed to receive recognition at the hands of the American Medical Association.

During the succeeding year the fight between the factions was hot and fierce; both parties sought support from the profession of the State, and the different county societies.

At the annual meeting of the State Society, held in February of 1883, the new code advocates again triumphed. The medical profession of New York State was again unrepresented in the session of the American Medical Association, held at Cleveland, Ohio, in 1883.

During the season of 1883, after a bitter and disgraceful fight, the new code element captured the New York Academy of Medicine; this was followed shortly after by the organization of a new county society out of the conservative members of the profession, and those still remaining in accord with the American Medical Association. By parliamentary manœuvering, at the meeting of the State Society in 1883, the question of final settlement between the old and the new codes, and the continued affiliation with the American Medical Association was postponed for one year. During this year, circulars were issued by both parties to the profession of the State, and all possible pains was taken to insure an individual expression of opinion with reference to one or the other code. The best analysis of the results of these efforts

that I have seen, was published in Dr. Squibbs' Ephemeris for January, 1884. "Of the 5,219 whose names could be obtained from all sources, 3,608 voted, but thirty-one of these votes were too indefinite to be fairly counted on either side of the issue voted upon, thus leaving the total vote 3,577, while 1,611 made no reply—were not heard from at all, and therefore declined to vote at all. Of the 3,577—or say 3,608—who did vote, 2,424 voted for the national code, and 1,184 voted against it; majority in the State for the national code, 1,240; the national code have nineteen votes over two-thirds of the total votes, or nineteen votes more than two to one of the combined opposition. In the County of New York, out of 1,707 names, 771 are for the national code, and 491 against it; with 445 non-voters. Of the Kings county medical profession, total number who voted, 384; of these 248 voted for the national code: ninety-nine for the new code; thirty-four for no code, and three who could not be classified." This canvass was made in anticipation of the seventy-eighth annual meeting of the State Society, which was held in Albany, February 5th, 6th, and 7th, 1884, and at which meeting the position of the Society with reference to the new code was to be finally determined. As we all know, this question was decided in favor of the new code. The final vote was taken at the evening session of Tuesday, February 5th, and resulted in 105 in favor of the repeal of the new code, and 125 in favor of its retention—a total vote of 230.

On Wednesday morning, February 6th, a meeting of the adherents of the national code was held at the Delevan House, and a new State Society was organized under the name of the New York State Medical Association. This Association has recently issued in pamphlet form, a report of the proceedings of the Convention held in Albany, February

4th and 6th, 1884. In the absence of a copy of the same, I quote the following from a synopsis that appears in the *Boston Medical and Surgical Journal* of March 20th, 1884. "The proof is found to contain the names of 5,219. Since the appearance of the proof new names have come in to the number of sixty.seven, which number, added to the original, gives a total of 5,286. Since the beginning of the canvass there have died 83; number of names stricken off from other causes, 201: leaving a total (given in corrected catalogue), of 5,002. Number of those who have not expressed their preference, 1,142. Total number of votes recorded, 3,860.

"For the national code, (corrected number)	2,547
For the new code " "	1,040
For no code " "	239
Unclassified	34
Total	3,860

"The canvass of the State Medical Society showed the following figures:

For national code	193
For the new code	134
For no code	19
Uncommitted	36
Total	382"

The following is a portion of the address of Dr. Austin Flint, Jr., before the Convention, quoted from the above mentioned journal:

"It is more than a year since I have publicly spoken to an audience of friends on the questions which have at last divided the medical profession of the State of New York. As you well know, thus far the battle-field, in the warfare against the honor and dignity of the profession, has been

mainly in the City of New York. In the City of New York the conspiracy which brought about this deplorable conflict that has been forced upon us, had its inception. The attack upon the most sacred traditions of our profession, was there made with a malignant rancor that can only be fully appreciated by those who have been personally involved in this unhappy contest. I say it in all modesty, but we of the City of New York come before you as veterans from the front, bearing scars. If we venture to offer suggestions with regard to future action, if we beg you to learn a lesson from our experience, it is because we are unhappily too familiar with the arrogance and the unscrupulous methods of our enemies within the profession. Our experience teaches us that but one course is now open to those who are unwilling to remain in the false and humiliating position in which we are placed. The proper course is for us to organize a new State Association, to be composed exclusively of those who refuse to countenance professional relations with irregular practitioners. The issue has been forced upon us. We stand in the actual fact of a divided profession. The State Society, and the Society of the County of New York have *seceded* from the regular profession of the United States. We made no movement looking to the formation of a legal State association, until the most vigorous efforts to redeem the existing societies had signally and hopelessly failed. We are now cast out of fellowship with the regular profession of this great country, as represented in the American Medical Association, and in the Medical Societies of other States. We must redeem the State of New York. There remains but one course to pursue, and that is to form an Association of our own."

It will thus be seen that in the principal State in the Union, and in the largest city in the United States, the regu-

lar medical profession, comprising a large number of the leading and best physicians of the country, is split into two antagonistic factions, divided by a bitterness of spirit which will be very difficult to reconcile. The old adage—"in union there is strength," etc.—will not fail in its application to this suicidal action. This secession movement is a serious menace to true medical science, as its advocates will not be content until they have sown the seeds of discord broadcast throughout the land, thus weakening the regular profession, and at the same time giving strength and encouragement to its enemies. This encouragement has already been made manifest by the introduction in the United States Congress, during its present session, of a bill by Senator Hale, providing that hereafter all vacancies occurring in the medical corps of the army and navy of the United States, shall be filled without reference to sect. That graduates from any *legal* medical school (without reference to creed), shall be permitted to appear before the different examining boards as candidates for such positions. Should this become a law, it might be argued, that so long as the examining boards are made up as at present, no special harm could result from such privilege; but such action would be an entering wedge, and who can tell how far it may be driven.

The final action of the New York State Society served as a signal for the dropping of the flimsy rag, which, under the name of *new code*, had been ineffectually used to cover the nakedness of its advocates; it had served its purpose as a sort of *let down easy* argument with the timid, who had hesitated to take the headlong plunge that should sever at a blow their connection with the American Medical Association, and the profession of the country at large. A motion was made for the substitution of *no code* in the place of *new code*.

In view of the accomplished facts which we have just been

considering, and the almost inevitable evil results that the action of the City and State of New York will entail upon other States in the Union, it seems proper to inquire into some of the principal causes that have been operative in bringing the profession of New York to its present status, and to ascertain if some measures may not be devised to avert the dangers which threaten to overwhelm true medical science. and at the same time restore harmonious union in the ranks of the entire profession.

The first factor that presents itself in this inquiry is the immense growth of the parasites before alluded to, and especially that of Homœopathy. The three principal "pathies" that the profession has to contend with are Homœopathy, Eclecticism, and Hydropathy. The two latter practically play no part, or at least a very unimportant part in the present controversy, by reason of the fact that the therapeutics of *water* are common to all, and the methods of the eclectics are similar to those of the general profession, with the exception that being the legitimate successor of the old Thompsonian or Botanic school, the use of the mineral kingdom is excluded by their tenets. This limits the real issue to true medical science on the one hand, and the most powerful as well as the most subtle and insidious of the parasites on the other, viz: Homœopathy. It is the most powerful, for the reason that upon the surface it can show an apparent basis of truth, and that upon said basis it has set up a law of cure, and for the administration of medicines, which allows its disciples to approach the bedside of the sick with a confidence in themselves, and the potency of their remedies, that most certainly does not obtain in the majority of the newly fledged graduates of our medical schools, or in fact of the profession generally. It is the most subtle and insidious, for the reason that it approaches the general public on its two most vulnerable sides.

viz: its pockets and its palates; its pockets, inasmuch as there are no heavy drug bills to be enumerated in the expense account of a long illness; its palates, by reason of the methods of preparation and character of the medicaments used.

Let us glance for a moment at the respective merits of the two sides to this issue. First, *medical science* has for its foundation anatomy, histology, physiology, pathology, surgery, chemistry, materia medica, and therapeutics; besides these, hygiene, investigations of the special senses and organs, involving minute knowledge of physics and natural phenomena, and microscopical investigations into causes of disease, etc., as exemplified in the researches of Pasteur, Koch, etc.; *second*, an empirical method of therapeutics, based upon no law, remedies selected from a large pharmacopœia, often at random, and more often still by an individual preference, which is well illustrated in a consultation of several physicians, by each one having a pet remedy to suggest.

On the other side. First, the promulgation of a false dogma of cure (though containing certain elements of truth, which give it a glimmer of reality), and the elaboration of *certain* and *fixed* rules for medication, based on this dogma of cure; *second*, an admirable, systematic and careful selection of crude drugs; accurate and honest preparation of tinctures, which really represent the qualities of the drugs; and methods of dispensing, which, to say the least, and without reference to their effects, are most captivating to those having to swallow the doses. Add to this, that these doses are mostly dispensed by the attending physician, and without cost to the patient.

This is all that Homœopathy can lay claim to, but with the the general public (and an intelligent public as well), it has so grown in favor and power that it does not belie its resemblance to its vegetable prototype, which flourishes and fattens

upon a vitality in nowise its own—and no denunciation or open war will ever suffice to destroy it. This result, however, would not, and could not have obtained, had the leading men in the profession--teachers and writers—utilized the time spent in contemptuous denunciation of the "new system," in carefully examining into what merits it really possessed, divesting it of its errors, and quietly absorbing all that was good, making it part and parcel of general medical science. Such a course would have put a quietus upon the whole thing, and the enemy would have been conquered with its own weapons. Instead of this, the opposite course was followed, thereby giving greater publicity to what has now grown into a power that has led directly to this code controversy; for, let medical gentlemen say what they may, and use whatever specious arguments they choose, it is sufficiently patent to the profession outside of New York, that, had not Homœopathy grown to its present proportions, this controversy would never have occurred.

The question that naturally arises in the minds of those outside of this controversy, is,—in what way are medical men to be benefited by the adoption of this *new code?* It is a virtual acknowledgement on the part of its advocates, that the parasite has seriously crippled the plant upon which it flourished, and most assuredly its pride will thereby be so exalted that it will accept nothing less than a recognition of its demands for equality.

This has already been made manifest by the recent action of the New York State Homœopathic Society, held in February of the present year, and to which I shall call your attention further on. The spectacle presented is very humiliating, and such a surrender is almost beyond belief. It is all the more humiliating in the face of a statement recently made by a prominent specialist of New York City, in an

introductory address before a medical class, to the effect,—that "it was not possible, *and never would be*," to find medical men outside of New York City of equal talent with those located in that favored spot." The answer to this question must be left for the future to determine.

Allowing that the growth of homœopathy has been the rock on which the profession of New York has been split in twain, we must not lose sight of the fact, that this same element has assumed such proportions as to seriously threaten the profession throughout the entire country. It not only promulgates false theories and doctrines, but its whole tendency is to divert the mind from true scientific study of the fundamental principles of medicine.

Any one at all familiar with Homœopathic methods and practice, is well aware that its principal, in fact its only strength is confined to that department in medicine which is brought most directly to the attention of the public; viz: the administration of remedies for diseased conditions of the human system, in other words—therapeutics.

It is equally well known that this special department is the weakest one of the regular profession. While our pharmaceutical brothers have been making great strides in the way of extracting the active principles of the organic kingdom, have put into our hands chemicals, and chemical combinations of wonderful power, and have given us elegant and palatable preparations; the empirical methods of administering remedies have gone on almost without change;—there has been very little attempt made to deduce any *system* out of the chaos. How many men prescribe drugs with a definite idea of how they are going to act in the economy?

How many of our young graduates know that the apparent contradictory effects of ipecac, in controlling nausea. (in certain conditions of the stomach), and in producing emesis,

are due, not to any real contradictory action, or hocus pocus of the drug itself, but simply to the fact, that its primary effect, in minute doses, is stimulant to the coats of the stomach; while the emesis is the result of over stimulation, the stomach rebelling and throwing off the offending agent; or, that the exhilarating stimulus, and deep narcosis of opium are governed by the same law of increasing stimulation, only, that the latter drug being taken into the circulation and conveyed to the brain centers, is enabled to keep up the stimulating action, until these centers will no longer respond, and narcosis, or deadness follows.

How many students are familiar with the peculiar selection that drugs have in their elimination from the economy, of different portions of the emunctory system, or how this elimination may affect these portions, according to the quantity eliminated. This is well illustrated in the action of the ordinary colocynth apple, which produces in full doses, such drastic purgation as it is eliminated from the colon, and which will in its turn act almost as a specific for the cure of certain drastic diarrhœas from the colon, provided it be administered in sufficiently small doses to produce its primary tonic effect. In short, the entire question of therapeutics is contained in the formula—*primary and secondary effects of drugs.* I use the word *effects* advisedly, for the *action* is in all cases precisely the same.

The primary effect obtains so long as nature responds promptly to the action of the medicament, and is irritant, tonic, and stimulant. So soon as nature begins to fail in response to the medicament, the secondary effect begins, which is sedative, depressant, narcotic and poisonous.

This law applies equally to all drugs, and easily explains the large range of doses that obtains in many instances, while still confined to their primary effects, and the exceed-

ing small range of doses which obtains in other and more potent drugs. It is this law also that gives whatever truth there may be in the dogma, "similia, similibus, curantur;" and by reason of the small doses that the disciples of Homœopathy generally make use of, their medication is almost wholly confined to the *primary* effects of the drugs; while as a rule, the medication of the regular profession is largely on the side of the *secondary* effects.

In a recent conversation with a prominent physician of this city, upon the subject of the double action of medicines, he remarked that he had recognized for a long time that quinine in small doses was tonic, while in large doses it was sedative. It is a curious fact, that it was a recognition of this action in Peruvian bark, which first drew the attention of Dr. Samuel Hahnemann, the founder of Homœopathy, to similar actions of other drugs, and led to his making the investigations that culminated in the familiar dogma, "similia, similibus, curantur." He had unquestionably stumbled upon a great truth, and although he failed to recognize the real law governing the therapeutics of drugs, and involved it in still greater obscurity by his absurdities, methods of administration, etc.; there was still sufficient strength in his promulgated dogma to permit of a system being evolved therefrom, which has resulted in the present proportions of Homœopathy.

This growth has been stimulated and abetted by stupidity and ignorance on the part of the general profession, which, although ostensibly permitting its members to make use of any and all means therapeutically, for the amelioration of suffering, or the promotion of cure, has persistently refused examination into, or testing of, the merits of said system.

Some thirteen or fourteen years ago, the writer of this article devoted considerable time to the study of the doc-

trines and methods of Homœopathy, with a view of ascertaining wherein the power lay that enabled this "schism" not only to maintain itself, but to constantly attain greater proportions. With this end in view, he had carefully prepared, concentrated tinctures of aconite root, belladonna, gelseminum, nux vomica, ipecac, colocynth apple, etc., and proceeded to test their action in minute doses. Soon after beginning these testings, Ringer in England began the publication of his experiments with aconite. Subsequent investigations of Ringer, with the publication of his work on therapeutics, followed by the book of Roberts Bartholow, on the same subject, both of which publications have already passed through several editions, have helped to place therapeutics on a much better basis than formerly. Both of these writers, however, have failed to recognize the existence of a positive underlying law governing the therapeutics of all drugs. The experiments of the writer led to his being brought before the Kansas State Medical Society, to answer the charge of irregularity, in embracing, as well as practicing, Homœopathy. The charges were not sustained.

I have dwelt upon this subject of therapeutics, because I believe it to be of the utmost importance to the future welfare of the profession. It is at present the element of greatest strength in the system of Homœopathy, and of greatest weakness in regular practice, and unless serious and determined efforts be made to give this subject greater importance both in practice and in the curriculum of our medical schools, we need never expect to demolish Homœopathy.

Recognizing the importance of a change in the old methods of the schools in the teaching of materia medica and therapeutics, the Regents of the University of California, at the request of the Faculty of the Medical Department, some two years ago, separated the two subjects; discontinued the chair

of general chemistry and created a new chair of materia medica, and medical chemistry, appointing to the same a competent and experienced druggist and chemist. This left the chair of therapeutics by itself. This change is already bearing fruit in a largely increased interest in the subjects on the the students. The minor position accorded to materia medica, medical chemistry, and therapeutics in our schools, is curiously illustrated in the 101st Annual Announcement of the Medical Department of Harvard University, which so justly stands at the head of the medical schools of America.

In the published list of the Faculty proper, is announced a Professor of Materia Medica—none of medical chemistry or therapeutics. In the list of other instructors is announced an assistant in materia medica. No mention is made of medical chemistry or therapeutics.

In the Order of Studies for both the three and four year courses, medical chemistry and materia medica are announced for the second year; and therapeutics for the third year.

In the annnal examinations—medical chemistry and materia medica come at the end of the second year; therapeutics at the end of the third year.

So much commotion, however, has arisen in our ranks, that more than this will be required to restore that harmonious unity so necessary for the upholding of medical science, and this leads directly to the discussion of a subject, which has agitated the profession for a long time, but which so far has not reached any satisfactory solution. This is the question of regulating the practice of medicine by Legislative enactment. It is impossible as well as needless to enter here upon a discussion of the various calls that have been made upon the different State Legislatures in this direction. It is sufficient to know that so far no enactment has proved ade-

quate or satisfactory; and in view of our republican form of government, with a lack of sufficient central power to procure Congressional action, for a uniform control of the profession in each and every State, and the impossibility of procuring uniform enactments by the different State Legislatures, it would seem to me that the only remedy remains in the hands of the profession itself. The professions of theology and the law, make no appeals to the law-making powers for interference with their affairs; it is only the medical profession which makes application to the high and mighty intellects of the various State Legislatures for the enactment of laws for protection from quacks and irregulars.

The latest propositions in the way of legal enactments are two bills presented at the last meeting of the New York Medical Society, for indorsement by the latter body, prior to being introduced in the Legislature for passage. Both bills provide for a commission of nine men—practitioners unconnected with medical colleges—to be appointed by the Governor, and to be called the Medical Faculty of the University of the State of New York, and before which all persons desirous of practicing medicine in the State of New York, subsequent to the passage of either of the said bills, shall be obliged to appear for examination. These bills are known as the Sturgis and the Wey bills. The Sturgis Bill provides "for representatives of the several systems of medical practice recognized by the incorporated medical societies in the State in the proportion of (6) (2) and (1)." The Wey Bill does not specify the composition of the faculty.

The results of all legislative enactments that have hitherto been made, in the various State Legislatures, conclusively show how utterly impossible it is for one party in interest to secure the passage of a law that has not submitted to modifications dictated by other parties in interest. No better illus-

tration of such fact could be asked for than the results of legislation in regard to medical matters in California. The profession in New York is not likely to fare any better, and that element which so recently seceded from the American Medical Association is not finding the elysium so fondly dreamed.

The *Philadelphia News*, for February 23d, 1884, contains the following pertinent article:

"The disciples of the 'new code' are already experiencing the difficulty of keeping their recently sought friends within control. The New York State Homœopathic Society, instead of immediately disbanding and falling into the proffered embrace of the other State Society, as was confidently predicted it would when the 'new code' was adopted, has the ingratitude not only to maintain its name and organization for all they are worth, but also, at its annual meeting held at Albany last week, it has adopted a memorial expressing its disapproval of the medical bills presented at the late meeting of the New York State Medical Society, and now before the Legislature, and demanding that any Board of Examiners which may be authorized by legal enactment, shall be composed of three (3) Allopaths, three (3) Homœopaths, and three (3) Eclectics."

Having received the unsolicited indorsement of the New York State Medical Society, it is not unnatural that its substantial fruits should now be demanded by these irregulars; and if the New York State Medical Society is not ready, in the bills now pending, to concede to all "legally qualified practitioners of medicine" the equal standing which their State laws give them, then what does their "new code" mean?

If it be true that all "schisms" in medicine have for their basis, differences in methods of administering, and the apply-

ing of remedies in disease, then it is perfectly just to charge therapeutics with being the originating cause of all the trouble that has arisen in the profession of New York; and if it be true that this branch of the curriculum of our schools has been given an inferior position, and insufficient prominence, and that our graduates are deficient in that which, above all else, constitutes them doctors in the eyes of the world, then it behooves us to institute speedy reform therein.

Calling upon our legislators for protective enactments against quacks and irregulars, will do us no more good in the future than it has in the past. All legislative bodies contain the friends and advocates of the irregular systems, as well as of legitimate medicine, and who can be so sanguine as to hope that there could ever be legislation in the different States that would create a uniform standard of medical education?

There is one point, also, in this question of legislation, that I do not remember to have ever seen mentioned, but which strikes me as being a very important one. The Constitution of the United States gives equal protection to life and property, etc., to the citizens of the whole country, irrespective of State lines. Can any *one* State enact and maintain that a graduate from any *legal* medical school shall not be allowed to pursue his legitimate functions anywhere within the limits of the United States? To my mind, this question of legislation is so utterly removed from consideration as a factor in the settlement of the difficulties that have arisen, that I would look in some other direction for a remedy.

Something over a year ago the writer submitted a plan, in a communication to the *New York Medical Record*, for a uniform system of examination throughout the entire country, said examinations to be exclusively under the control of the Profession itself, independent of politics, or of appeals to legal

enactments. No suggestions that I have seen or heard have appeared as practical or practicable as the one referred to. Of course the details of such a plan would have to be very carefully arranged, and great pains taken in the selection of the various examining boards; but all these difficulties could certainly be managed.

The plan proposed was in the main, as follows: Let the American Medical Association select three (3) men, and the Medical Corps of the army and navy of the United States each one (1); the five (5), so elected to constitue the Central Committee, or head of the various Examining Boards, and having its headquarters in Washington. Let the different State Medical Societies select five (5) members from their ranks, who are also members of the American Medical Association (the larger and more populous States having more than one such Board, if desired), who shall constitute in their respective States the Examining Board (or Boards), for admission to a National Medical Society or Organization, incorporated under United States Laws, and having power to issue Diplomas, and confer decorations, or badges of membership. The Central Committee at Washington to prepare the questions, etc., for an examination, equal in degree with those for admission to the Medical Corps of the Army and Navy, and which shall be uniform for each and every State, and so arranged that the examination shall all be conducted at the same time. The written examination to be forwarded, under seal, to the Central Committee at Washington, together with a report of the results of the oral examinations in each case, with recommendations, etc. The Central Committee to have the final voice in determining fitness for membership, and to issue diplomas, etc. The fees for each examination to be not less than twenty (20) dollars, and on the issuance of a diploma to a successful candidate, not less than thirty (30) dol-

lars additional. The Central Committee to receive a sufficient compensation, as salary, to enable its members to devote all the time necessary for carrying out of details. The different Branch Boards to receive a percentage of the examining fee, which is to be collected irrespective as to whether the candidate be successful or not.

Inasmuch as the profession claims to give every member in good standing the right to use such medicaments as he may choose, and in whatever way he thinks best adapted to securing relief from suffering, and the promotion of cure, allow the graduates of any medical school, whatever its tenets, to present themselves for examination, and issue diplomas to all successful candidates, upon payment of fees, with the distinct understanding and avowal on the part of each and every such successful candidate, that he shall only lay claim to recognition as a *Doctor of Medicine* (Medicinæ Doctor.)

The carrying out of this plan would result in the establishment of a "*caste*" in the profession, and give an opportunity for the better class of medical men to occupy a higher position. But I hear some one say; "This would be an impertinent and arrogant discrimination." Let us look at the existing state of things and see. First—I would ask, what proportion of the graduates, in any given year, throughout the United States, could successfully pass the required examination before the Examining Boards of the Army and Navy? (See Report of Dr. Gibbon, referred to by Dr. McNutt, in his report.) Second—How much discrimination is made by the public in the question of diplomas? Possession entitles the holder to all the rights and privileges of the profession, and individuality does the rest. But that there is a "caste" in the matter of education, and consequent value of the diplomas, let me quote from the *Medical Record* of New York, under date of February 2d, 1884, to show:

"There are in the United States one hundred and twenty (120) medical colleges. Of these only twenty-seven (27) require three courses of lectures; only thirteen (13) have a term of more than twenty-four (24) weeks; and the number which really insist upon a sufficient preliminary education is extremely small. These colleges have over twelve thousand (12,000) matriculated students, and every year graduate over four thousand (4,000) men, who, for the most part, start out at once to join the ninety thousand (90,000) doctors already in the land. The number of medical colleges and of medical practitioners in this country is disastrously excessive."

This may seem queer language to come from Dr. Shrady, of the *Record*, but who can deny its truth, or come to other conclusions?

It need be only necessary to compare one man who has received a liberal education, and then has graduated from a medical college requiring three or four years of continuous study, including thorough training in the laboratory, and other practical work, with another, having no preliminary qualifications in education, but who has succeeded in obtaining his diploma from some institution requiring only two courses of lectures, of say, twenty-four weeks each. As things stand to-day, however, the world knows no difference between these two, and intermediate classes of men; and this constitutes one of our greatest evils.

Recognize, in some such manner as outlined above, the actual differences existing, and the thoroughly educated of all classes will join in a harmonious unity, that will effectually end all these unnatural and destructive controversies, while at the same time, such action cannot fail to force our medical schools to raise their standard of education, and eventually result in the discontinuance of those schools that fail to prepare their students for admission to the higher plane.

HAWAIIAN LEPROSY.

BY A. W. SAXE, M. D.

If an apology were required for taxing the time and patience of this Society on the subject of Hawaiian Leprosy, it may be found in the popular estimate of the fearful character of the disease, and the anxiety to avert its advent in California.

In a former report read before this Society in 1881, the history of the disease in these Islands, climate, topography, and local hygiene, were sufficiently considered. This communication will refer only to present aspects of the disease, and its management by the Hawaiian Government.

Whole number of lepers committed to the asylum at Kalawao on Molokai, from its establishment January 6th, 1866, to January 6th, 1883—seventeen years—males, 1658; females, 969; total, 2,627.

Total number of deaths, same period—males, 1,200, females, 669; total, 1,869.

Number at present at the asylum, 780; average annual commitments, 154.

Some three years ago, an experimental hospital was established at Kakaako, an eastern suburb of Honolulu, on a coral formation two or three feet above tide water. The object of this institution was to determine the condition of suspected lepers, and commit to Kalawao, only such as plainly were subject to the disease. Among these suspects

were many cases of the cachexy of syphilis and scrofula, who after a short time of specific treatment, were discharged as non-lepers—thus vindicating the wisdom of the plan of temporary detention. The number of lepers at Kakaako is about two hundred, mostly in the incipient stages of the disease. The number of lepers still at large on the various Islands of the group is estimated by competent judges, at about two hundred.

Any report of the Hawaiian Government efforts at confining or stamping out the disease, is liable to give offense, and it should be distinctly understood that there can be little doubt that the Government is doing all it is able to do under the circumstances. A few facts pertaining to these important matters may be given, from which correct and just conclusions may be drawn.

First—The native Hawaiian has no dread of the disease. The leper is looked upon with pity and is not excluded from any social or societary privileges. At the late elections for members of the National Legislature, a candidate on the Island of Kanai, in a public address, stated that he himself was a leper, and for that reason he demanded the sympathy and votes of the people.

Second—The government, originally a chieftaincy, is now more nearly a patriarchy—the King being regarded by the natives as their father in all civil concerns, and sanitary laws are to a great extent nullified by appeals to the King, and his minister, who is necessarily his *alter ego*. A system of permits and tickets of leave prevails to a great extent, which ignore sanitary and hygienic conditions entirely. A leper of good family connections, having been detained at Kakaako, preliminary to the asylum at Kalawao, was on the streets of Honolulu one morning, his face and hands giving unmistakable evidence of the disease. On being inquired

of by a government officer how he came to be at liberty, he replied that he had a permit from the Board of Health to spend a few days among his friends, which seemed to the natives a very kind and proper thing to do. The enclosure at Kakaako, some three or four acres in area, is surrounded by a substantial picket fence, pickets three inches wide, with interspaces of two to three inches. Through these interspaces the natives visit and chat with their friends, and like Pyramus and Thisbe, exchange little courtesies unmolested.

The leper settlement at Kalawao, Molokai, is admirably adapted to the purpose for which it was chosen. Of the nearly eight hundred lepers living there, less than one hundred require nurses or other attendants. Being able to receive and prepare their own rations, the commissary department of this little community requires vaqueros to attend to the delivery of slaughtered cattle, sheep, hogs, and other supplies. A few servants—non-lepers—called *kokuas*, are allowed by the Government to live at the settlement to attend to these duties, and are paid a specific rate for any service rendered. All other supplies, such as flour, rice, fish, potatoes and taro or pai-ai, are delivered at the settlement by contract. There is also a store of general merchandise, kept by private parties—resident lepers—for the convenience of those who, having money, may wish to purchase. All this appears rational, humane and proper. But instead of the few kokuas necessary to attend to these duties, there are about three hundred who constitute an army of bummers. They arrive here by permits, stay as long as they please, and go away when and where they please. Fifty were counted in one squad, who had climbed the pali and were going to the polling place to vote the next day. How many more came up and voted, when they returned, or how long they remained visiting

among their friends outside of the asylum, nobody seemed to know or care. About the same time, two stalwart native Sheriffs went down to the settlement to collect the poll tax of these koknas, where they spent nearly a week at their unnecessary work, and returned to Honolulu. The lepers pay no tax except on property outside of the settlement. These koknas ought to pay their taxes elsewhere, and not contribute to the possible spread of the disease.

The relation of leprosy to syphilis is being canvassed, not only at Honolulu, but elsewhere, as it has been for the last fifty years in Britain, Norway, Sweden, Southern Europe and India.

The forms of syphilis commonly seen in the hospitals, and in private practice in the Hawaiian Kingdom, are secondary,—the various manifestations of tertiary—and hereditary. Primary is notably rare, considering the habits of the people.

That few of the natives have escaped this scourge is less strange, when we remember that the disease was almost entirely without treatment, except that practiced by the kahunas—native medicine men—which consisted mostly in the use of decoctions of herbs, among which the root of the (*Ava* piper methisticum), was most highly esteemed. These decoctions are known to have been practically inert as antisyphilitics, so that the disease has had free, unrestrained course among the people for nearly one hundred years. Still it is doubtful whether the prevailing syphilitic cachexy has had any influence in inviting, or at all modifying leprosy, as the disease is instantly recognized by those familiar with it, as the same in general character as that prevailing in India, Mexico and Europe.

The physicians of the Hawaiian Islands, long residents and of first class abilities and attainments, are nearly unanimous in the opinion that leprosy is a distinct and separate

entity, having no other relation to syphilis than its occasional association with it; that it is contagious, that the mode of contagion is peculiar, and unlike that of many other of the contagious diseases.

The physician in charge of the lepers in Honolulu, Dr. G. L. Fitch, is of the opinion that the disease is a fourth stage or sequence of syphilis, and defends his propositions with much show of reason. But any candid, well informed physician will entertain doubts, or strongly dissent from Dr. F.'s propositions, for the following reasons:

Syphilis was introduced into these Islands at the time of Capt. Cook's first visit in 1778. Leprosy was unknown to the natives until 1848, when it was introduced by the Chinese, and Ahia, a Chinaman, was the first leper identified by the Hawaiian Board of Health.

That leprosy overran all Southern Europe from the Bosphorus to the Straits of Gibraltar, for hundreds of years, while syphilis was no more active or virulent than at present. That by segregation of the disease and isolation with better hygienic conditions, the disease has, to a great extent, disappeared—while syphilis remains. That syphilis in all its stages, prevails in all the great emporiums of civilization and commerce in the temperate regions of the earth, without inducing leprosy, so that in looking into the etiology of the disease, we are forced to the conclusion that it must be a distinct and separate entity, and that it is only incidentally associated with syphilis. The fact that the bacillus of leprosy has been found in the tubercular deposits of the disease by Hansen of Norway, Neisser of Breslau, and many others in Europe and America, and recently by Dr. Arning at Honolulu, having certain characteristics found in no other diseased conditions, being pathognomonic—whether as cause or accompaniment—is quite significant.

Although the nature and conditions of the specific contagion are unknown, yet the fact remains that the disease is communicated from one individual to another. The disease appears in children and adults under circumstances which afford no clue to its mode of origin. A native Hawaiian may be seen in Honolulu, over fifty years of age, who has lived with a leper wife over twenty years, and although the loss of the bones of the nose and palate, and huge chasms in the track of the cervical glands, attest the ravages of syphilis, he exhibits no sign of leprosy. The causes and conditions of this remarkable immunity are unknown.

The uniform testimony of careful and competent observers is, that while lepers suffering from associated syphilis are greatly benefited by specific treatment—chiefly hydr. bichlor., iod. pot., and hydr. biniod.--yet the leprosy proceeds with remorseless persistence to the death of its victim.

A few cases of apparent cures have been reported in New York and elsewhere. Dr. Hildebrand, for many years resident at Honolulu, but during the last ten in Europe, in a letter to the Board of Health at Honolulu, reports two cases of children apparently cured by the persistent use of creosote in half minim does diluted in water, three times a day, to be gradually increased to the limit of gastric toleration. Our best pathologists and therapeutists are hopeful that the disease in its earlier stages may be cured, but thus far no definite conclusions have been reached.

The danger of incidental or accidental contraction of the disease by tourists, invalids, commercial agents and others embracing the class known as transient visitors to the Hawaiian Islands, is frequently a subject of anxious inquiry. The question may be answered by the assurance that cleanly persons are in no danger whatever, but those who abase themselves to the level of the common native, are in danger.

Native nurses for young children are regarded as a possible source of danger, but the recommendations of the local physicians are a sufficient guaranty of safety in this regard.

As a sanitarium in all cases of bronchial and catarrhal diseases, and in Bright's disease of the kidneys, these Islands should be to California and the Pacific States what Nice and Alexandria are to Britain and Northern Europe. Being free from malaria and having a temperature and other atmospheric conditions, well adapted to invite free action of the cutaneous functions, there is afforded a condition of natural cure so much coveted by invalids already surfeited with medicines. All such may avail themselves of these advantages without apprehension.

EXPERIENCES OF A COUNTRY DOCTOR.

BY H. J. CRUMPTON, M. D.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: The old-timers, as they insist on calling themselves, referring to those who came to this coast soon after the acquisition of the territory, were peculiar in many ways, in none more so than their tendency to engage in pursuits other than that for which early training had fitted them. Hence, we sometimes saw a lawyer driving a dray, a doctor conducting a lunch counter, a preacher a notion store, or in rare instances trying to beat three-card monte. In my own case, coming among the first as a fledgling "medico," upon reaching this, then great city of the future, my first employment was along the water front and among the shipping in the harbor, then burning charcoal and chopping cordwood from the scrub oaks growing in the hills hereabouts, my last coal pit being put up near where our meeting is now being held. Then later, for a series of years, I led the life of a so-called honest miner; so that though now well along life's journey, 'twas at a comparatively recent date that professional pursuits received my undivided attention.

My first call was in consultation with an old practitioner, to an ugly case of so-called mountain fever. Though now, meeting him for the first time, I was soon impressed with the belief that my associate was a well informed practitioner and a worthy gentleman, who only required a little moral

support. With my own limited experience, I unhesitatingly endorsed his diagnosis, treatment and prognosis, the correctness of the latter being verified within a few days by a fatal termination. Whatever errors I may have committed in the same direction later in life, in this my first consultation, my companion showed approval of my conduct by many kindnesses afterwards when I sorely needed all the moral aid and comfort obtainable.

One of my first cases in obstetrics was in consultation some ten miles from home, where I found a short, compactly built blonde, a primipara, who had been in labor twenty hours, with a large hard head presenting by the vertex, seeking exit through a passage whose diameters were all small. She had a short thick neck, complained of headache and dimness of vision, and the carotids were beating like trip-hammers. The poor woman was despondent indeed, said she'd soon die if not promptly relieved, when with the suddenness of a thunderclap she was seized with a terrific convulsion, followed in rapid succession by others which caused consternation in the minds of all present, including the two doctors, neither of us ever seeing such a seizure before. We kept our panic-stricken condition concealed, and proceeded promptly to place the woman under chloroform, and continued the use of that agent to the end. This procedure seemed in no way to modify the character or frequency of the convulsions, as there was a paroxysm about every half hour, the labor progressing slowly between them till the head rested on the thick unyielding perineum, when the paroxysms so increased in frequency as to be almost merged into each other, and the expulsive effort ceased. Now, regarding the life of the mother in imminent peril, with the probability that the child was already dead, we determined upon its immediate expulsion if possible.

We believed it necessary to break down the head, which we succeeded in doing with such appliances as could be improvised on the spot, and then had no further difficulty in emptying the womb of its contents; the only comforting feature of this bloody drama, being, that the woman escaped all lacerations, had no more convulsions, and a comparatively good getting up. In the light of later experience I believe the woman ought to have been freely bled, and in more skillful hands possibly the forceps might have been successfully used, though at the time we regarded their introduction as impossible, even though their blades were as thin as tissue paper.

On another occasion I hurriedly responded to a call thirty miles from home, where I found a poor fragile, delicate little primipara, aged 15; she had given birth to a dead child before my arrival, and I emptied the womb of its remaining contents. She had been in labor the previous twenty-four hours, the pains very slight all the way through. I was sent for because of the ushering in of convulsions some ten hours before my arrival, these like the labor pains not very severe by reason of the low grade of vitality in the patient. She had two after my arrival, when they ceased, more from the failure of the powers of life, than from my efforts at relief. She rapidly passed into a state of profound coma, from which she never rallied, in spite of my best directed efforts, dying two hours after my arrival. Possibly proper care early in the case might have saved both mother and child; the probabilities, however, are all the other way. Another such case I remember seeing, in consultation with another gentleman, where the convulsions were promptly controlled with large doses of gelseminum.

I was hurriedly summoned to a Mrs. D. a well developed woman, six months along with her fourth pregnancy, her

youngest child being seven years old. I found her in a state of serious nervous and mental perturbation, resulting from family trouble, with gloomy forebodings based on bitter experiences in her last confinement. This condition soon culminated in a convulsion of great intensity, soon followed by another. My first purpose was to bleed, but, finding a feeble circulation for one of her build, I then relied on the hypodermic use of morphia, which controlled the paroxysms nicely. She did well for a few days, when an inflammatory state showed itself, rapidly invading the peritoneum; this for a time it seemed was being successfully combated; on one occasion I left her about midnight in a hopeful condition, to find on my return next morning everything changed for the worst, and she died within twenty-four hours; this sad result I believe was from imprudently changing her from one bed to another. To add to my chagrin was the fact that she had no professional attendant in her last confinement, had frequent paroxysms of this dreadful malady, which finally ceased without any remedial interference.

Another such case was in the person of a splendidly developed brunette, aged 20, weighing perhaps one hundred and fifty pounds, six and one-half months pregnant with her first child. Here I saw two or three of the most terrific convulsions. Now having a good subject, I tied up an arm and let perhaps twenty ounces of blood, which greatly lessened the frequency and severity of the seizures; but as there was still a tendency that way, I determined to take more blood; the second time drawing half as much as before, which accomplished all that could be desired; the woman had no more trouble and went on to full term. I was then called; an examination showed the conditions all satisfactory, labor progressed favorably till the head rested on the perineum, which, with

all the soft parts seemed to be yielding nicely, when our old enemy again appeared with the suddenness of an electric shock, the paroxysms almost as intense as before. Venesection had given such prompt relief in the previous attack I can hardly tell you why I did not at once resort to that procedure. I chose, however, first to use hypodermically Magendie's solution of morphia and tr. verat. viridi, maximum does of each, with very satisfactory results, and the labor was soon over, the mother and fine daughter getting along nicely afterwards.

For one whose field of observation has been limited to a sparcely populated outlying district, it seems to me it has been my fate to encounter an unusual number of such cases. In thus venturing to give an outline history of some of them, I have spared you the infliction of having to listen to details, or to the advancing of pet theories. To most of you, I know I have presented nothing novel or of special interest, and am free to confess that in my next, will feel almost as ignorant as in the first case treated. One whose memory we all honor, writing more than the third of a century ago, referring to a group of forty-nine cases of puerperal eclampsia, treated by him resulting in a large number of deaths, says: "This result, discouraging as it may be, does not lessen my hope that the new light recently thrown on the etiology of child-bed convulsions will enable our successors to lessen the ratio of fatalities to the number of cases." Whether these hopeful predictions are now being verified, I leave others to determine. "Unfortunately, in too many cases medical aid is called only after a fatal blow has fallen on the poor victim whom peventive measures might have saved."

Another of my early cases in midwifery was a call to a squaw, a primipara, whom I found had been in labor twenty-

four hours. She was a splendid specimen of womanly vigor, aged eighteen, weighing perhaps one hundred and forty; had a well formed, roomy pelvis; there was an ordinary vertex presentation, with nothing abnormal about the labor, which would long before have terminated favorably if left to the unaided powers of nature, but the rude manipulations of her dusky attendants had well nigh destroyed the patient. One procedure, was passing a rope several times around the woman's body, with a lusty buck stationed on either side, whose duty was at the recurrence of a pain, to pull on the respective ends of the rope, with the design of expressing or squeezing the child into the world through the usual passage. They had much nearer succeeded in forcing it through the abdominal walls of the mother. This was my first call among these people; I believed the womon would die; the lying-in chamber was a large structure, which we may call their town hall, built after the usual wigwam fashion; every Indian in the camp, to the number of over one hundred, embracing all ages and both sexes, were within this one enclosure, all taking deep interest in the case, showing great sympathy for the distressed woman; 'twas about midnight, the air of the apartment stifling, loaded with exhalations from the assembled nastiness, and no white person on the premises except the badly scared doctor, who had heard of a disagreeable custom with some tribes of cremating the attendant in case the sick one died. I sent for a "squaw-man" who lived with the Indians of another rancherie, two miles away, to come hurriedly. Upon his arrival he explained the situation to the Indians and promised to shield me from all harm, be the result to the woman what it might. I hurriedly placed her under chloroform, made some little adjustment of the presentation, gave stimulants and ergot, and soon had the satisfaction of completing the delivery of a big

male papoose, who soon announced his coming by loud crying. When it was ascertained that both mother and child were all right, the assemblage made long and loud demonstrations of joy, and tendered quite an ovation to the humble "accoucheur," he being for the time a greater man than General Grant ever was with the same number of people. They now insisted on the further management of the labor themselves, to which I readily agreed; the rope which had remained entwined about the woman's person was now used to a good purpose in the expression of the placenta, and soon the uterus was emptied and contracted finely. As this was before Crede's method was proposed, I shall claim precedence for my digger friends in this procedure. After giv- a few general directions, I was hurriedly preparing to leave when occurred to me an interesting episode, as one of them asked the amount of my fee. This was so unlike my white patrons, it was only after a little hesitancy my reply was: "To white man 'twould be fifty dollars; to Indian 'tis only thirty dollars." After seeing the alacrity with which that sum was raised and placed in the hands of the "impecunious" doctor, my soul was overwhelmed with regrets that any reduction from usual rates had been suggested, as this was in a region where ready money was very scarce and prompt payment of doctor's bills not the rule. I remained in high favor with these people till the following Fall, when there was a great deal of pneumonia among them, principally in little children. As they measure merit by success, I was cooly reminded by one of these redskins that most of the cases treated by a doctor died, and some who had no doctor got well. Practice among these people is very unsatisfactory; the plainest directions will not be carried out in one's absence, to say nothing of the intermeddling and experimenting going on without the knowledge of the medical attend-

ant. In Sacramento, the other day, upon K street, I saw a sign reading, "Say-Yon-Na, Indian Doctress," who upon being seen, seemed to be no more nor less than any other painted, ignorant squaw. Not long since a sort of "alf-and-alf" medical journal published in this city, contained an editorial recommendation of somebody's "Indian Blood Syrup," and we frequently see in the newspapers flaming advertisements of "Indian Vegetable Pills" and the like. Now all this shows a belief among the people that these dirty specimens of *yellow covered* humanity have knowledge of healing processes unknown to the pale-faces. 'Tis true valuable additions to indigenous medical botany have been suggested through that source, but as used by them so mixed with crudities and innate nastiness, religious mummery and rude manipulations, as to be worse than useless in most instances to *poor Lo.* When placed under the care of native healers, nearly all cases of serious illness prove fatal, most all delicate children die young; indeed they *are* a strong and vigorous race, it being a case of the survival of the fittest.

I was called ten miles from home, where I found a noble little fellow about eight years old, suffering with chronic dysentery, grafted on to a shattered constitution. I found another physician had been, and was then in attendance, who held sad relations to the family; as under his care, the year before, the whole family of six children including the present sufferer, had diphtheria, of which four of them died. In sending for me I found the family proposed dismissing him, but at my solicitation they reluctantly consented to retain him, and we acted in concert to the sad end which occurred about ten days afterwards. This man was one of the "*old-timers*" referred to at the beginning of this paper, and was an important character in his village, as, besides being a practitioner and graduate in medicine, he kept a drug store.

hotel, livery stable, was postmaster and justice of the peace, had recently been converted, was a local preacher, exhorter and superintendent of Sunday school. In his presence, I was one day indulging in some gloomy reflections about our patient's hopeless condition, was propounding to myself such queries as "are you sure you are doing all that is possible for any one to do for the relief of your little sufferer?" and was afraid to answer affirmatively; remarking to my companion, "poor little fellow, he will soon pass away." His reply showed him equal to the emergency, that no feeling of self-reproach troubled him, that he had sources of comfort not enjoyed by me, as he remarked: "Well doctor, we must humbly bow to the will of God—the Lord giveth, the Lord taketh away, blessed be the name of the Lord!" If you could have seen the air of sanctity and self-satisfaction with which this was uttered, you would have agreed with me that any one in such a happy frame of mind was not likely to suffer with remorse, worrying over sins of omission or commission occurring in the management of cases in practice. This trifling incident is intended to point out the advantage a religious doctor has over his non-religious brother.

About one hundred miles north of where we now are, nestled away in the coast range of mountains, is a charming region, about which the outside world is surprisingly ignorant, where there are a large number of mineral springs possessing wonderful curative powers when properly used, frequented by many visitors, some of whom go on the theory that if to drink of these waters sufficient to quench thirst is good, to drink three or four gallons a day is better. As thus recklessly used the wonder is not that they sometimes do harm, but rather that serious results do not oftener follow. I was once called on by a middle-aged, healthy looking man, who said he had just returned from a hunting expedition,

and had camped for quite a while at one of these mineral springs, had drank an immense quantity of the water, not because he was sick but because some had told him it was *healthy to do so.* He complained of great irritation of the whole urinary tract, said the calls to micturate were frequent and urgent, greatly disturbing his rest at night; in addition to which he said his virile powers were well nigh gone—a source of great mental anguish, as he had just commenced paying attention to a charming widow, whom he desired to marry, and believed she wouldn't say no. He wanted to know if I could'nt fix him up so as to be equal to all the duties that such relation might entail; being lavish in his promises of a big fee in case of success. I promised to do what I could for him, commenced treatment by frequently placing the external genitals in a vacuum, thus relieving from atmospheric pressure and inviting a more active circulation to the parts, reinforcing this procedure by the internal administration of phosphorus and strychnia. The most admirable success was now manifest—my patient was loud in expressions of thanks, but according to my usual lax way of doing business, payment of my fee was not exacted just then; and he soon after proposed to the widow, was jilted and then repudiated, my bill. But I had my revenge; the demon of lust had been waked up, my man commenced indulging in promiscuous fornication, and soon came back to me to be treated for what he called "gononhaho." I need not tell you that I then worked the case "for all there was in it."

CAUSES MODIFYING THE CLIMATE ON THE PACIFIC COAST OF THE UNITED STATES AND BRITISH COLUMBIA.

BY J. B. TREMBLEY, M. D., OAKLAND.

It is said that every country in the world, to a greater or less extent, has a climate peculiar to itself. In many respects it may be similar to that of another, but not identical, for the various factors that go to make it are not always equally alike, or bring the same influences to bear on each individual region of the earth. It was once thought that climate depended mostly on latitude and the declination of the sun either north or south of the equator; but more recent observations show that many other causes which are independent of these modify temperatures and precipitation.

The western coast of Europe and North America are examples of similar climate, modified by the same corresponding causes, ocean and air currents. Without entering into an extended inquiry over the various portions of the world in comparing climatic factors, which would be uninteresting to a majority of readers and embrace more than is designed to be written in this paper; therefore, the knowledge, positive and theoretical, of the climatic conditions that are imposed upon the western slope of the Pacific Coast, bordering on the ocean, from Alaska towards the south, and the causes as far as observed, is all that would interest the local

or general reader. The same general causes that modify the climate of Alaska, British Columbia, Oregon and California, extending into Mexico, have long been known to meteorologists, and those who have made physical geography a study. But the many local modifying influences that these great currents of water and air meet with, as they impinge upon the northwestern coast of the continent, by high mountain ranges, inland valleys and solar heat, give as various climates as the topography of the country is different where their influence is felt. The ocean current that modifies the climate of the Pacific Coast, is a portion of the great equatorial cnrrent which is deflected northerly and easterly when it meets the eastern coast of Asia. This current, a portion of the warm equatorial current, as it flows toward the northwest, washing the eastern shores of China and Japan, takes the name of the Japan current, or Kuro-Siwo. At or near latitude 50° and longitude 170°, it divides; one portion, continuing northerly, passes through Behring Straits, the other south of the Aleutian Islands assumes the name of the Aleutian current. It advances eastward until it strikes the northwest coast of North America; then turning acutely to the southeast, flowing along the western shore, until what is left is drawn into the great equatorial current at or near the Tropic of Cancer, again to make the circuit of nearly a quarter of a hemisphere. Various elements of this great current, when taken into consideration, that go to make it one of the physical constants in the formation of climate, seems as yet but partially understood. Its depth, width, velocity and temperature have not been investigated as have some of the currents of the Atlantic Ocean. Professor Davidson, of San Francisco, seems to have been almost the only one who has given this subject any attention, with the exception of some casual observers, who have here and there

made memoranda for their own curiosity. The professor starts with a maximum temperature of the Japan current of 88°, Fahrenheit. At Alaska, 50.06°. Six to eight hundred miles west from San Francisco, 60.33°; one hundred miles west, 55.05°. At the tidal station at Fort Point the mean temperature for eight years was 55.66°, that of the air being 54.97°. The mean temperature of the ocean nine hundred miles west of San Francisco for one year was 60.52°, as found by the ocean steamers going and coming from Yokohama to San Francisco. This shows a difference of temperature to be in the water of the ocean current one hundred miles to the west and that at the tidal station on shore to be .61° less; at six to eight hundred miles 4.67° greater; at nine hundred miles, 4.86° greater or warmer.

This great ocean current in flowing from its origin to the coast of California has parted with 32.34° of heat; or in other words, has lost, from the average temperature of the equatorial waters (78), 22.34°, and leaves an average surface ocean temperature, to the distance of nine hundred miles west of California, of 57.89°. The temperature of the air along the coast, and the water, hardly ever rises more than two or three degrees, and the above figures show only 2.92° for the average difference in temperature of the water and air over a large area of the ocean contiguous to the Pacific Coast, and gives an explanation of the low temperature at the base of the atmospherical column that rests on the ocean's water. Also the great freedom from rain during the Summer months, when the westerly winds overcast and fogs prevail.

For the purpose designed by this paper, the above is all the information that can be obtained bearing upon the temperature of the ocean's water in the vicinity of this coast, with the exception of the counter or eddying current, said to

have been discovered by Professor Davidson; who in describing the great stream that flows across the ocean, remarks that "a branch of this current continues direct to the Alexandrian Archipelago, and, striking the southern part of the coast, is deflected to the northward and westward," and calls it the warm Alaska current, which causes the high isothermal lines that exist directly on the Alsakan coast.

The great aerial air current that moves with the ocean stream, is the counter trade wind of the northern hemisphere, and seems to determine the character of the climate. almost wholly, of California. As it strikes this coast it is always the high current, and flowing from a westerly direction changing but very little the point of the compass at the same date of time in each year.

It oscillates from the south of west at one portion of the year, to north of west at another, moving from north to south with the declination of the sun, and then back again. During the Summer season it blows nearly from the west. and in Winter, being acted on by the polar winds, is given a more northwesterly direction.

Physical geography has so well described the great system of atmospherical currents that it is superfluous to enter into a description of all the winds, and the laws that produce them. Owing to solar heat, and the diurnal motion of the earth, three distinct belts or systems of winds are produced. Easterly winds in the tropical zone, westerly winds in the temperate zone, and northerly or northwesterly in the higher latitudes. These zones of wind move bodily to and fro with the vertical rays of the sun, toward the north in Summer, and toward the south in Winter. On the movement of these zones of water and air, rests the causes of the wet and dry seasons over the great area of country bordering on the western coast of the United States.

The most philosophical and scientific dissertation, perhaps, on this subject for depth of research, long and patient labor, appertaining to the wind currents, climate of California and contiguous territory, was made by the late lamented B. B. Redding, and read before the Academy of Sciences in San Francisco, in January, 1878. His observations are as follows:

"As California is within the northern temperate zone, it is primarily to the movement as a body north or south of this belt of wind that we are indebted for our dry Summers and Winter rains. Where, within the tropics the northeastern and southeastern trade winds meet, is a region of calms and rains. This belt of calms and rains, as has been stated, moves northward and southward with the sun's declination. Where, within the temperate zone, the northern and northwesterly winds from the polar regions meet the westerly return trade winds, is a region of storms and rains. These belts also follow the sun's declination north and south. Applying these laws to this coast, at our midsummer, the vertical sun would be on the Tropic of Cancer, and in that vicinity the northeasterly and southeasterly trade winds would meet, create ascending air, consequently calms; this air, laden with moisture, would rise into cooler regions, when a portion of its moisture would be precipitated, making tropical rains; this air would flow north and south toward the poles. Confining our view to that portion which would flow toward the north pole, the larger part of it must descend to the earth within thirty degrees of latitude, under the law, as stated by Professor Henry, as in going north it continuously has to pass over a portion of the earth which is moving less rapidly than the portion it has left, it is deflected and becomes a southwest wind. The greater portion of this upper current having descended to the earth within thirty degrees and re-

turned to join the trade wind, the remainder would flow toward the pole, portions descending in its course at all points where the rarification of the air near the earth's surface would permit. These descending currents cause the local variable winds of our temperate zone, but the aggregate of all of them is the prevailing westerly return trade wind. The descending currents cannot give rain, as they only fall to the earth when they become colder than the air near the earth's surface. In falling they are constantly arriving at places of warmer temperature than those they have left; they, therefore change to a condition of taking up moisture, rather than of parting with it. *Where the great body of the descending return trade wind reaches the earth between latitudes twenty-eight degrees and thirty-five degrees must, therefore, on this coast, be comparatively a rainless region.* Other lessening portions of the upper current would pass on until they met the prevailing wind from the polar regions, when their temperature would be lowered and their moisture condensed and fall as rain. The conflict of this descending current with the polar wind would create storms and give rise to electrical phenomena. The prevailing northerly polar wind reaches to about latitude sixty degrees, varied by the declination of the sun.

"This view of the causes of the tropical, temperate and polar zones of prevailing winds, is in accordance with the theoretical deductions of Professor Ferrell concerning the course of atmospheric currents moving on a sphere, and appears to be confirmed by the belts of low barometer prevailing in the vicinities of the equator, and of latitude sixty degrees. The polar wind being colder, is heavier than the return trade wind, and where they meet, the tendency is for this polar wind to become a surface wind, and prevent the upper current from reaching the earth until it has been re-

duced to the same temperature. The operation of these general laws can be more clearly seen on this coast than on that of the Atlantic and Gulf States. There, the northeast trade winds are forced into the great cauldron af the Gulf of Mexico. The Cordilleras of Central and South America and Mexico form a wall against their progress; they rise, turn to the north as an upper current, and return to the earth as southwest winds.

"The Rocky Mountains, one great chain of which extends from the center of the continent northwesterly to the Arctic Ocean, assist in the deflection. The great prairies extend in an unbroken line in the same direction from the mouth of the Mississippi, to the same frozen ocean at the mouth of the Mackenzie River, in about latitude sixty-two degrees. Professor J. W. Foster, in his work on the 'Physical Geography of the Mississippi Valley,' states that the sources of the Mississippi River are but 1,600 feet above the ocean. Professor Coffin has shown from the records in the Smithsonian Institute in his article on the 'Winds of the Northern Hemisphere,' that between latitudes sixty and sixty-six degrees there prevails a belt of easterly and northeasterly winds. These winds, coming from the Arctic Ocean, meet the great chain of the Rocky Mountains, are deflected into northwest winds and pass unobstructed along this great stretch of prairie land into the States east of the Rocky Mountains. The conflict between the northeast polar winds and the moisture-laden southwest winds from the Gulf of Mexico, gives all the Atlantic States north of Florida their Summer rains. As far back as 1850, Professor Espy, in his second report on meteorology to the Secretary of the Navy, without, at that time, more than suspecting the cause, reported as the result of a long series of observations, that in the northern part of the Atlantic States the winds generally, in great storms, set

in from north of east and terminate from north of west, and in the southern part of the Atlantic States they set in from south of east and terminate from south of west.

"It is doubtful if the Atlantic trade winds ever give rain to California. That portion which passes the mountains through the valley of the Rio Grande, precipitating its moisture on the White Mountains and Black Hills of Arizona, which, by the meteorological records of the Smithsonian Institute, are shown to have an annual average of twenty inches of rain.

"That these general laws may be applied to California as the cause of our climate, I will assume to follow a given portion of air along well known points on the coast. At midsummer, at noon, the sun would be vertical in Southern California just north of Cape St. Lucas. In this vicinity, this portion of air, having been a part of the trade wind, would have become heated and saturated with moisture. It would rise until it met colder regions, when it would part with some of its moisture; a portion would return to the earth within thirty degrees, again to join the trade winds, and another portion pass on towards the north as a part of the great upper current. Under the operation of Professor Henry's law, the greater part must return to the earth between latitude thirty degrees, and, say latitude thirty-five degrees; the remainder would flow on towards the pole until it met the prevailing northwesterly winds; at these points there would be fogs and summer rains. Whenever the polar wind forced its way south of this, it would condense the moisture of these descending return trade winds and give rain. This they would do until they had passed so far south that their temperature would be raised to that of the descending return trades, when, of course, no moisture could be precipitated. It is these polar winds, forcing themselves among the descending return trade

winds, that give British Columbia, Washington Territory, and Northern Oregon their Summer showers. Should they force themselves further south, they, in their passage, have to pass into warmer latitudes; they would also meet the heat of our great valleys and deserts, and become as warm as our prevailing summer wind, and, therefore, could not give California summer rains.

"But, from midsummer, the sun is for six months moving south, taking with him the great belts of winds of the tropical, temperate, and polar zones, until at our midwinter, his rays are vertical just north of the northern part of Chile, in South America. These belts, moving south with the sun during six months, the region of conflict between the polar winds and the variable winds which in Summer was over British Columbia, Washington Territory and Oregon, has now moved south over Oregon and the northern and middle part of California. The temperature of the earth's surface and the air in contact with it, have been lowered by the withdrawal of the sun's more direct rays, and the polar winds are permitted to reach further to the south without increasing their temperature. The region of calms and the southern limit of the variable winds have, of course, also moved south with the sun, beyond the Tropic of Cancer. At this season, in the Pacific, the trade wind is not usually found north of latitude thirteen degrees, when, in winter, the descending return trade wind, coming from the southwest, meets the coast south of Cape St. Lucas, it is forced by the Cordilleras and the configuration of the main coast into the Gulf of California, and is deflected into a course from the southeast, or, to be more exact, as shown by the records kept by Dr. Gibbons, into a course from the south-south-east. Without doubt, the southwest return trade wind which strikes the coast of Lower California in Winter north of Cape St. Lucas, is deflected by the high

mountains parellel to the shore, and also passes over our coast counties as a southeast wind. H. S. Warner, in a paper read before the American Association for the Advancement of Science at its Baltimore meeting in 1858, was the first to note the fact that the waters of the Gulf of California supply the moisture to the southeast wind that bears to us our rains. It may be objected that the Gulf of California has not sufficient area from whence could be delivered the great volumes of southwest winds that, at times, during our winters, flow over our State. The Gulf is not the cause of this wind, but it is the channel through which it flows, and gives to it direction. When the sun is vertical on the coast of Bolivia, just north of Chile—at our mid-winter—he has carried south with him the northeast trade winds, until, as has been stated, they do not prevail north of about latitude thirteen degrees. The region of calms where the great body of the upper current returns to the earth again to join the trade winds, is, at this season, between latitudes thirteen and eighteen degrees. North of this region of calms, at this time those portions of the upper current which pass further north, descend to the earth, under Professor Henry's law, as southwest winds. At latitude twenty degrees, the west coast of Mexico projects a bold headland into the Pacific Ocean, known at Cape Corrientes. South of the Cape the trend of the coast for nearly two thousand miles is east-southeast; north of this cape, the trend of the coast for more than one hundred miles, to Mazatlan, is north; from Mazatlan to the head of the Gulf of California, a further distance of six hundred miles, it is north-northwest. The Sonora arm of the Cordilleras rises above the table land of Mexico, at latitude twenty degrees, and runs northwest along the coast, nearly to the head of the Gulf of California. All of these southwest winds that strike the coast from Cape Corrientes north to

Cape St. Lucas, are deflected by these mountains and forced up the Gulf as south-southeast winds. The United States Coast Survey have lately completed the survey of this gulf and parts of the Mexican coast north of Cape Corrientes. When their record of observation of the course of the prevailing winds in Winter, the barometric pressure and the temperature of the air and water is published, I feel confident that it will be found that the southwest return trades prevail in Winter north of Cape Corrientes, and are turned by the mountains and the coast up the Gulf of California, and so over this State as our southeast winds. It comes from this gulf warm and laden with moisture, and passes over the Colorado and Mojave deserts. These deserts, as shown by the meteorological records of the Smithsonian Institute, have a mean Winter temperature of from forty-eight to fifty-six degrees. This is not sufficiently low to precipitate its moistnre, and passes on until it meets the Sierra Nevada and Coast Range. In ascending these it rises into cooler regions, finds a mean Winter temperature of forty degrees and gives up some of its moisture. When it flows down into the southern end of the great valley of the Tulare, it meets a mean Winter temperature of forty-eight degrees, which is higher than that of the mountains it has just passed. It therefore retains its moisture and passes on, until it meets a cold polar wind, and has another portion of its moisture condensed in a rain-storm, or failing to meet this, passing still further north, until its moisture is condensed by the prevailing low temperature of a higher latitude. It is of frequent occurrence in Winter that a gentle southeast wind will blow for days, giving no rain south of the latitude of San Francisco, but cloudy weather at the north end of the Sacramento valley, and light showers and rains from Red Bluff to Oregon. Therefore, the northern part of the State should receive more rain than

the southern, and the mountains more than the valleys. The least rain should be in the hot deserts and on those sides of valleys most sheltered by mountains from the moisture bearing winds."

Meteorological observation, taken since the writing of the above fully confirm the assertion made respecting the rainfall, however phenomenal it may appear to be, and show, conclusively, that the precipitation in all the territory tributary to the influence of the above factors of climate, is subservient to meteorological laws, the same as in other parts of the world, differing only as the physical causes differ that produce the resultant effects. The average annual rainfall at Crescent City, in the extreme northern part of the State of California, is thirty-six inches, and diminishes about two inches for every degree of latitude towards the south, until. at San Diego, it is but ten inches. In altitude it is found to increase about one inch for every one hundred feet in elevation in ascending the windward side of the Sierra Nevada range of mountains. Local causes have influences bearing upon the amount of rainfall in different localities, but they are nearly all topographical; and, when carefully studied, are easily explained, either for the small or great amount of average rainfall they receive.

FRACTURE

Of the Neck of the Condyle of the Lower Jaw, left side; and of the Shaft, right side. Recovery without deformity.

BY A. B. STUART, M. D.

During the evening of August 26th, 1882, I was called to see James M. Lynch, aged forty-two years, a native of Ireland, a gentleman of leisure, sanguine nervous temperament, with an apparent tendency to phthisis pulmonalis, suffering from what proved to be a fracture of the condyle of the inferior maxilla, left side, the separation occurring through the neck and below the insertion of the external pterygoid muscle, caused by direct violence—a stroke with a club in the hands of a second party—the counter force fracturing the jaw on the opposite side near the mental foramen.

My first impression was that I had to deal with a dislocation of the jaw on the left side, but finding a preternatural mobility with crepitus, I diagnosed a double fracture, but was uncertain as to the exact localities. The upper and lower teeth were easily brought into articulation, but as soon as I removed my hands the lower jaw fell, and slightly to the left side, the opposite of what it was when I first saw it, the mouth being open and the jaw to the right side. A careful examination found the condyle of the left side separated from the ascending ramus, and drawn forward, upward, and inward, and at the same time the ramus was drawn upward, the first

by the action of the external pterygoid muscle, and the latter by the masseter; thus a correct diagnosis was easily made. Recognizing one of those rare and and unsatisfactory cases, fracture of the neck of the condyle of the lower jaw, I was not disposed to be hasty in applying a permanent dressing, and for the time being simply brought the lower teeth into opposition with the upper, and retained the jaw in that position with an extemporized Barton's bandage; gave an opiate, and left my patient in the care of friends for the night, and returning to my office, carefully reviewed reports of such cases as given by Hamilton and others. The following day I was enabled to confirm my previous diagnosis, and adopted Ribes' method of reduction, as described by Malgaigne, and a combination of Fountain's and Hamilton's methods of retaining the fragments in apposition; that is, with my right hand I seized the anterior portion of the jaw and drew it horizontally forwards, while I carried the index and middle fingers of the left hand to the lateral and superior part of the pharynx and arriving at the inner side of the condyle, pushed it outwards in such a manner as to engage it upon the other fragment, and bearing the jaw upward and backward, pressed and fixed the condyle between it and the glenoid cavity. Having previously fastened heavy iron wire, silvered, to two of the lower teeth, and the same to their fellows above, the lower teeth were firmly wired to the upper, as advised by Fountain, to which was brought the support of Hamilton's leather sling or apparatus.

Having previously lost the second bicuspid tooth on the left side, he was enabled, by inserting a piece of rubber tubing, to take drink and liquid nourishment at will.

The case was tedious, and required careful watching, the wires having to be occasionally changed to keep them from displacing the teeth, but the result on the left side was and is

perfect, the fractured ends of the neck of the condyle having united in exact apposition, so far as it is possible to ascertain. On the right side the lower teeth are displaced inwards about two lines, but practically that is now of no disadvantage, the teeth having adapted themselves to their present position.

Mr. Lynch considers himself as good in every respect as he was before the injury; yet for several months he had a partial paralysis of the muscles of the left side of the face, the result of the blow. Electricity was the principal agent used in restoring the tone of the paralyzed muscles, all of which were supplied by the facial nerve.

In reviewing the surgical history of such cases, I find but fourteen recorded, twelve of which terminated unfavorably, and two favorably; of the latter Ribes' was the first, and Fountain's the second. To the above add the present case, and we have fifteen of fracture of the condyle of the inferior maxilla with displacement of the fragments, and but three recoveries without deformity.

In the treatment and care of the foregoing case I was ably and intelligently assisted by my wife, Anabel McG. Stuart, M. D.

REPORT OF COMMITTEE ON NECROLOGY.

BY A. W. SAXE, M. D., CHAIRMAN.

DR. J. BRADFORD COX,

A member of the California State Medical Society, died at San Jose, March 14th, 1884, aged forty-four years.

Dr. Cox was born in Ohio, in the year 1840; came to California in 1859; graduated from the Portland, Oregon, Academy, 1865; took his degree of M. D. at the Long Island Hospital College, in 1869; commenced the practice of medicine at Sonoma, California, 1870; moved to Healdsburg June 1873; from November, 1874, to May, 1875, at Hoopa Valley; located at San Jose November, 1875; joined the State Medical Society 1878; was prostrated by a fatal illness March 3d, and died March 14th, 1884. No autopsy was made, but all symptoms indicated cerebral abscess.

Dr. Cox was highly esteemed by his many friends in Santa Clara County as an upright, conscientious man, a faithful physician and friend, and a valuable citizen.

BENJAMIN DOUGLAS DEAN.

BY DR. W. A. GROVER.

The subject of this memoir, Dr. Benj. D. Dean, of San Francisco, died (of cerebral congestion) on the sixth [illegible] October, 1883.

We find from Atkinson's History of Physicians and Surgeons of the United States, that he was born in Freetown, Bristol County, Massachusetts, on the fifth day of April, 1820, and that he received his academic education in the public schools of Fall River and the Pierce Academy of Hilsborough, Massachusetts, and the Bacon Academy of Colchester, Connecticut, and that his medical education was pursued under the immediate tuition of Wm. Henry Allen Crary, M. D., of Fall River, and Professor Gilman Kimball, M. D., of Lowell, Massachusetts; and that he attended lectures at the Berkshire Medical College at Pittsfield, Massachusetts, from which institution he graduated on the ninth day of November, 1843.

It was my good fortune to make his acquaintance while a student of medicine at the above named institution, and to retain that acquaintance and friendship from that time up to the day of his death, a period of over forty-two years. I can, therefore, speak of him from personal observation and an intimate daily acquaintance.

As a student of medicine he was dignified and exemplary in character, punctual, studious, and attentive in habits, genial and social with his friends—all of which won for him the confidence and respect of the professors, students, and all with whom he became acquainted.

At the closs of the commencement exercises of the Berkshire Medical College (November 9th, 1843), an Alumni Association was formed, and Dr. Dean, although one of the youngest members of the class, was unanimously chosen as its first President. On leaving his Alma Mater he for a short time settled in his native village, Fall River, but soon afterwards settled permanently in Norwich, Connecticut, where he remained fourteen years.

Having been educated in the public schools of his native

State, and having more than an ordinary academic education, he was thoroughly imbued with the principles of free schools, and was always identified with their warmest friends and firm supporters; and was, therefore, soon after his return to his native city, placed upon the School Board.

On taking up his permanent residence in Norwich, Connecticut, he was elected one of the Selectmen (or City Council), and President of the Board of Education, an office which he held for several years.

He was also a member of the New London County Medical Society, and of the State Medical Society of Connecticut, and, in 1856, delivered its annual address.

On his arrival in California he became identified with the San Francisco County Medical Society, and at various periods of time held the offices of President, Vice President, librarian, and trustee, all of which were filled with honor to himself as well as to the Society.

He was also a member of the Medical Society of the State of California, and Vice President thereof in 1878.

In 1860 he was elected physician of the Industrial School (a large reformatory institution about six miles from San Francisco), and held the position, without interruption, up to the day of his death, a period of twenty-three years, and not only with honor to himself, but to the entire satisfaction of the various Boards and other officers of the institution during that long period of time.

In civil life he also filled many positions of honor and responsibility, among which was one of Trustee of the San Francisco Saving and Loan Society, one of the oldest saving institutions in California. This position he occupied, without interruption, more than twenty years, and up to the day of his death.

Personally, Dr. Dean, in many of his characteristics, was

somewhat peculiar. He was a man of few words, and of such a retiring disposition that he would much rather hear others speak than to make himself appear conspicuous, however well he might understand the subject under consideration; and although he was well posted in all of the current literature of the day, and was decided in his own views thereon, yet he did not thrust his own political, religious, or medical opinions upon others unasked. He did not, therefore, boast of or fully appreciate his own abilities, judgment, or skill, but was rather inclined to hide his own lamp under a bushel, and content himself with good actions well performed, though unknown to all others beside himself. He was utterly opposed to making anything like a false show in business, and did not therefore have what might have been termed a large and lucrative practice; yet his faithful attention to the sick, cool and careful judgment, sympathizing and genial disposition, made him safe in counsel and eminently successful in the treatment of those committed to his charge, whether in medicine, surgery, or obstetrics.

In the death of Dr. Dean his family lost a kind and affectionate husband and father, society a worthy and highly respected citizen, the medical profession an able, honest, and conscientious physician, and his early associates and acquaintances a kind and faithful friend.

DR. WM. LEWITT.

BY DR. JAMES SIMPSON.

Dr. Wm. Lewitt was born in Leicester, England, in 1828, and, when a child, came with his mother to Michigan, where he spent the greater part of his life. In 1852, at the age of twenty-four, his attention was directed to the profession of

medicine, and he commenced his studies at Ann Arbor, under the able guidance of Professor J. Adams Allen, now the distinguished President of Rush Medical College. He also attended lectures at Michigan University and Jefferson Medical College, and, after receiving his diploma from the latter institution, in 1855, commenced the practice of his profession in Ann Arbor.

His student life was marked by a strong partiality for the study of anatomy, and he attained to such proficiency in this department of medical science, that in 1858 he was selected to fill the vacancy of Demonstrator of Anatomy in the University of Michigan, which position he occupied until 1867, when he resigned to accept a similar one in Rush Medical College.

He came to California in 1875, where, three years later, his attainments as a scholar and his ability as a teacher secured for him the appointment of Anatomical Demonstrator, and finally of Professor in tke State University. The duties connected with this chair were ably and faithfully discharged by Dr. Lewitt until the pressure of private practice compelled him to resign it about one year before his death.

His death occurred very unexpectedly, on August 3d, 1883. An enthusiast in his work, beloved of his friends, colleagues, and patients, he truly died in the harness, for the last day of life was spent in the performance of his regular professional and social duties. He attended patients in the evening, and retired to rest apparently in his usual good health, but before another morning dawned he had passed away from the scene of his earthly labors.

EIGHTH ANNUAL REPORT OF THE BOARD OF EXAMINERS

TO THE

Medical Society of the State of California, for the Year ending April 15th, 1884.

BY R. H. PLUMMER, M. D., SECRETARY.

Number of meetings held during the fiscal year	15
Number of original certificates issued	113
Number of duplicate certificates issued where the original had been lost	3
Total number issued during the year	116
Whole number of certificates issued since the first organization of the Board, in 1876	1546
Number of certificates (previously issued by this Board) revoked on account of unprofessional conduct, in accordance with provisions of Section four of the amended law	2
Number of certificates refused on account of insufficient credentials, in accordance with the provisions of Section three of the same Act	2

Charges of unprofessional conduct have been preferred against one applicant for a certificate, the hearing of which is now pending before this Board, in accordance with provisions of Sectian four of the Amended Medical Act.

List of Colleges from which Diplomas have been presented during the year.

CALIFORNIA.

Cooper Medical College—successor to Medical College of the Pacific.....16
University of California.....11
Medical College of the Pacific..... 3—30

ILLINOIS.

Rush Medical College..... 6
Woman's Hospital Medical College..... 2
Chicago Medical College..... 1— 9

IOWA.

College of Physicians and Surgeons, Keokuk..... 5
University of the State of Iowa..... 2— 7

KENTUCKY.

Louisville Medical College..... 3
Kentucky School of Medicine..... 1— 4

MASSACHUSETTS.

Harvard Medical School..... 3

MICHIGAN.

University of Michigan..... 4

MISSOURI.

Missouri Medical College..... 4
St. Louis Medical College..... 3
College of Physicians and Surgeons ..... 1— 8

NEW HAMPSHIRE.

Dartmouth Medical College..... 2

NEW YORK.

Medical Department University New York City	4	
Bellevue Hospital Medical College	3	
College of Physicans and Surgeons	3	
Long Island College Hospital	1	
Albany Medical College	1	12

OHIO.

Columbus Medical College	1	
Cincinnati College of Medicine and Surgery	2	
Miami Medical College	3	
Medical College of Ohio	6	
Cleveland Medical College	2	
Starling Medical College	1	15

PENNSYLVANIA.

Jefferson Medical College	5	
Medical Department University of Pennsylvania	2	7

TENNESSEE.

Medical Department University, Nashville	1

VIRGINIA.

University of Virginia	1
Total	103

FOREIGN SCHOOLS.

Queen's University, Dublin	2
Faculty of Medicine of Paris	1
Royal College of Physicians and Surgeons, Scotland	1
University of Giessen, Germany	1
Laval University, Canada	1
University of Freiburg, Germany	1

University of Wuerzburg, Germany	1	
University of Strasburg, Germany	1	
College of Physicians and Surgeons, Edinburg	1	
University of Basle, Switzerland	1	
University of Victoria College, Canada	1	
University of Pavia, Italy	1	13
Total		116
California Colleges represented	2	
Other American Colleges represented	12	
Foreign Colleges represented	11	25
Of the licentiates there settled in San Francisco		29
In other towns and counties of this State		77
Total		116

In accordance with promises made at the last annual meeting, the Board issued the "Medical Register," being a complete list of its licentiates from its first organization, to which was appended a list from the Homœopathic and Eclectic Boards, the three lists combined amounting to one thousand eight hundred and ninety-five. A copy of the same was mailed to every member of this Society, and to every member of the several local societies throughout the State, so far as we could procure the names, which so promptly responded to a call of this Board last year for financial aid. Copies were also sent to other members of the profession who signified a desire for one. Many copies were also sent East to medical institutions, medical periodicals, and medical gentlemen, by request.

The Board hopes to be able to present a more elaborate and corrected list before the end of the ensuing year. Through this means every practitioner may be placed in possession of

the professional standing and qualification of every other legally qualified practitioner in this State.

During the Autumn arrangements were made and completed for an extended series of arrests and prosecutions for practicing without a certificate. Being absent during the Winter, I was surprised, on my return to duty, to learn that only one arrest had been made—that a Chinaman—and that after repeated efforts on the part of the prosecution, the case was brought to trial, when the Chinaman was acquitted by a "jury of his peers." By what process of reasoning the "intelligent jury" arrived at their conclusion, is unknown to your Board of Examiners—unknown to the prosecuting attorney—and, so far as I have learned, is unknown to the Judge who presided at the trial. The verdict was simply "not guilty of the offense charged in the complaint."

While the prosecutions have not been successful when tried before a jury, yet, "hope springs eternal in the human heart," and we are reminded that "the darkest hour is just before the dawn."

The prosecuting attorney has signified his willingness to engage to the full extent of his ability in further prosecutions whenever it is deemed proper to cause additional arrests.

The public needs a little more education on medical topics to induce it to sustain the efforts put forth by the profession in behalf of the best interests of the "dear people."

And they are receiving that education. Popular lectures upon Medical topics are being delivered in this city to houses crowded with thirsty wayfarers, eager to quaff from the fountain of knowledge the information necessary to enable them to choose wisely between the scientific medical man and the charlatan. Such lectures are becoming more and more popular in large cities throughout the United

States—I might with truth say the world—and it is to be hoped that the profession and the public in the interior cities and hamlets will catch up the ringing refrain and echo it back from the mountains.

We have been enabled to observe that in the profession the law is esteemed. Strangers coming to our State, hasten to have their names enrolled in the Medical Register, and carry a copy of the same, with feelings of satisfaction, to their new homes. It serves to segregate the sheep from the goats in the profession.

The Board is pleased to report to you, as will be shown in the Treasurer's account, that all its financial obligations have been discharged, and it enters the new year with a surplus in its treasury of one hundred and fifty-six dollars.

As to communications concerning future legislation, we leave that to your committee appointed for that purpose.

All of which is respectfully submitted on behalf of the Board.

ANNUAL REPORT OF R. H. PLUMMER, M. D., Treasurer of the Board of Examiners of the Medical Society of the State of California, for the year ending April 16th, 1884.

1883.	Dr.		1883.	Cr.	
April 20	To cash on hand from previous year	$ 37 65		By cash, stationery and incidentals, expenses of office	$24 65
	To cash, received from 113 applicants, $5 each	565 00		By cash, Dr. Kenyon, incidentals, expenses of office while Secretary pro. tem., as per voucher	15 45
	To cash, received from 3 duplicates, $1 each	3 00		By cash, expense of publishing Directory, as per voucher	250 00
May 21.	To cash, received from S. F. County Medical Society, for Directory	151 00		By cash, Dr. Kenyon, litigation expenses while Secretary pro. tem. as per voucher	50 00
Oct. 3.	To cash, received from State Medical Society	100 50		By cash, filling in certificates, as per voucher	12 80
Oct. 10.	To cash. received from State Medical Register	31 00		By cash, rubber stamps, as per voucher	3 00
	To cash, rec'd from 2 certificates issued Apr., '83	10 00		By cash, electrotype, as per voucher	1 00
				By cash, attorney's fees, as per voucher	110 00
				By cash, Bancroft, as per voucher	25 25
				By cash to Secretary for services, etc., per order of Board	250 00
					$742 15
				To balance remaining in treasury	156 00
	Total	$898 15		Total	$898 15

F. W. HATCH, Treasurer, in account with the Medical Society of the State of California.

1883	Dr.		Cr.	
April 19.	To Balance	$123 25	Paid Dr. Briggs, voucher No. 1	$168 25
	To cash from Dr. Briggs, voucher 1.	446 75	" " " " 2	25 00
	" " " " 2.	168 25	" M. R. Beard & Co., voucher No. 3	463 50
	" " " " 3.	120 00	" State Board of Med. Exam. voucher No. 4	100 50
	" " " " 4.	25 00	" Dr. Briggs, voucher No. 5	6 00
	" " " " 5.	70 00	By balance	190 00
1884	Total	953 25	Total	$953 25
April 16.	To balance	$190 00		

CONSTITUTION AND BY-LAWS OF THE SOCIETY.

ARTICLE I.

TITLE OF THE SOCIETY.

SECTION 1. This institution shall be styled "THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA."

ARTICLE II.

MEMBERS.

SECTION 1. The members of this Soceity shall consist of delegates from permanently organized local medical societies, ordinary and honorary members, who shall collectively represent and have cognizance of the common interests of the medical profession in the State of California.

SEC. 2. Each delegate from a local society shall hold his appointment for one year, and until another is appointed to succeed him, and shall participate in all the business and affairs of the Society on paying the usual dues of five dollars.

SEC. 3. Each local Society shall have the privilege of sending to this Society one delegate for every five of its regular resident members, and one for every additional fraction of more than one half that number of its members.

SEC. 4. Qualifications for membership shall consist of a good primary and medical education, attested by a diploma from some known medical school of good repute, and a good professional and moral standing in the community in which such candidate may reside. A license from the Board of Examiners of this Society shall also be required of every candidate.

Active Members.—Every physician who shall properly

satisfy the Board of Censors by the exhibition of his diploma that he possesses the necessary qualification as prescribed, may become an active member of this Society, and all those who may thereafter serve in the capacity of delegates to the Society, together with such other persons as may receive the appointment by unanimous vote, shall thereby become permanent members; *provided*, that no physician shall be considered eligible to membership who may reside within any location where there is a local medical society and who has failed to become a member thereof, unless there be some special reason assigned for his election; and no voucher or vouchers of any member or members shall be taken as satisfying evidence of any applicant's qualification for membership.

SEC. 5. Honorary members shall consist of such distinguished *savants* and others as may be deemed worthy of the compliment. They shall receive their appointment by a vote of the Society, and upon motion of some member present.

SEC. 6. Each individual, prior to taking his seat as a member of the Society, must sign the Constitution, inscribing his name and address in full, specifying in what capacity he attends, and if a delegate, the local society which he represents. Every member shall be entitled to the diploma of the Society, to which shall be attached the seal* of the Society, and the signature of the President and Permanent Secretary.

SEC. 7. The seal of this Society shall always be kept by the Permanent Secretary.

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* The seal that has been adopted shows enough of the beautiful design of the seal of the State to declare the common origin of the Medical Society and of the State of California, while the cock that was wont to be sacrificed to Esculapius, representing "Vigilance," is crowing out 1870, the year of the reorganization; and the serpent, emblematic of "sagacity and long life," lies entwined around the doctor's staff at his feet. Thus Vigilance and Sagacity typify the qualities a physician should possess under the direction of Minerva.

ARTICLE III.

OFFICERS.

SECTION 1. The officers of the Society shall be a President, four Vice Presidents, one Permanent and two Assistant Secretaries, a Treasurer, and a Board of Censors of five members. These officers shall be elected by the Society at large, during the afternoon session of the second day of meeting. The election shall be by ballot. With the exception of Permanent Secretary, each officer shall hold his appointment for one year, or until his successor is elected.

SEC. 2. The President shall preside at the meeting, preserve order, give a casting vote in case of a tie, and perform all other duties that custom and parliamentary usage may require. He shall organize and open the meeting next succeeding his election, by an address on some subject connected with medicine, or with the interests of the Society. He may also fill by appointment all vacancies that may occur from death or other causes.

SEC. 3. The Vice-Presidents, when called upon, shall assist the President in the performance of his duties, and during his absence, or at the request of the President, one of them shall officiate in his place.

SEC. 4. The Permanent Secretary shall authenticate the proceedings; give due notice of time of next meeting; serve as a member of Committee on Publication; preserve the archives and unpublished transactions of the Society; hold correspondence with other permanently organized societies, both domestic and foreign, and see that all the published transactions are promptly distributed to the members entitled to receive them. This officer shall not be subject to annual election, and shall not be removed except for cause shown.

SEC. 5. The Assistant Secretaries shall record the minutes, notify members of committees of their appointment, and of

the duties assigned them; and in the absence of the Permanent Secretary one of them shall perform his duties.

SEC. 6. The Treasurer shall have immediate charge and management of the funds as a property of the Society, and hold them subject to the disposal of the Society. At each annual meeting he shall present a report, setting forth the amount of moneys received, as well as the amount disbursed, and for what purpose.

SEC. 7. The Board of Censors shall examine the credentials of all candidates for admission to the Society, and if such credentials are found to conform with the requirements, as enacted in Article II of this Constitution, the Board of Censors shall recommend such applicants to the Society as suitable candidates for election.

ARTICLE IV.

MEETINGS.

SECTION 1. The regular meetings of the Society shall be held annually, and commence on the third Wednesday of April.

ARTICLE V.

STANDING COMMITTEES.

SECTION 1. The following standing committees, each composed of five members, of whom the first named is Chairman, shall be nominated at every annual meeting by the President elect, for the purpose of preparing and arranging business for each ensuing year, and for carrying into effect the orders of the Society not otherwise assigned:

On Practical Medicine and Medical Literature.

On Surgery.

On Obstetrics.

On Medical Topography, Meteorology, Endemics, and Epidemics.

On Indigenous Botany and the Domestic Adulteration of Drugs.

On Public Hygiene and State Medicine.

On Histology and Microscopy.

On Mental Diseases and Medical Jurisprudence.

On Medical Education.

On Publication.

On Arrangements.

On Prize Essays.

On Gynecology.

On Diseases of Women and Children.

On Ophthalmology.

On Necrology.

SEC. 2. The Committee on Practical Medicine and Medical Literature shall prepare an annual report on the more important improvements effected in this State in the management of individual diseases; the improvements and discoveries which may have been made in Anatomy, Physiology, General Pathology, Therapeutics, and Medical Jurisprudence.

SEC. 3. The Committee on Surgery shall prepare an annual report on all the important improvements in the management of surgical diseases effected in the State during the year, and, as far as can be ascertained, the number of capital operations performed, with their results.

SEC. 4. The Committee on Obstetrics shall prepare an annual report on the important improvements in the obstetrical art, and in the management of diseases peculiar to women and children, effected in the State during the year, together with such remarks touching these subjects as they may think proper.

SEC. 5. The Committee on Medical Topography, Meteorology, Endemics, and Epidemics, shall prepare an annual report on the peculiarity of the soil and climate of the differ-

ent sections of the State, with the diseases to which they are subject; also, the endemics and epidemics which have prevailed throughout the State during the year.

SEC. 6. The Committee on Indigenous Botany and the Domestic Adulteration of Drugs shall prepare an annual report on the indigenous medical botany of the State of California, paying particular attention to such plants as are found to possess valuable medicinal qualities and are not accurately described in standard works, and the localities where they are found. Also, to report on the quality of drugs brought to our market, with the view to correct the evils arising from the extensive introduction and sale of spurious and sophisticated articles.

SEC. 7. The Committee on Public Hygiene and State Medicine shall prepare an annual report on all subjects germane to this important branch of medical science.

SEC. 8. The Committe on Histology and Microscopy shall report and demonstrate such valuable facts and discoveries, annually, bearing directly or indirectly on medicine and surgery, as they may think proper.

SEC. 9. Committee on Mental Diseases and Medical Jurisprudence. This committee shall report on all psycological questions, and on such matters appertaining to medical jurisprudence as in their judgment may be deemed advisable. The duties of these committees shall be defined by a committee of three, appointed by the President for that purpose.

SEC. 10. The Committee on Medical Education shall prepare annual reports on the general condition of medical education in the State of California, as compared with the state of medical education in other States of the Union, noticing the several medical institutions of the State, their course of instruction, the practical requirements for graduating, the modes of examination for conferring degrees, and the reputed

number of pupils and graduates at each during the year; together with such other matters as they may deem worthy of consideration in reference to medical education and the reputable standing of the profession.

SEC. 10½. The President shall annually appoint a Committee on Medical Legislation, whose duty it shall be, by all lawful and honorable means, to promote the passage of Acts of legislation approved and recommended by this Society, with discretionary powers in emergencies.

SEC. 11. The Committee on Publication—of which the Permanent Secretary must constitute a part—shall have charge of preparing for the press, and of publishing and distributing such of the proceedings, transactions and memoirs of the Society as may be deemed worthy to be published.

SEC. 12. The Committee of Arrangements shall be composed of members residing at the place at which the Society is to hold its annual meeting, and shall be required to provide suitable accommodations for the meeting, to report on the credentials for membership, and to receive and announce all voluntary communications made to the Society.

SEC. 13. In order to afford the Committees on Medical Topography, Meteorology, Endemics and Epidemics, and on Indigenous Botany and the Domestic Adulteration of Drugs, material for their several annual reports, it shall be the duty of the several auxiliary societies in the State to transmit to the Chairmen of these respective committees, on or before the first day of March of each year, a special report, embracing such information touching their particular localities as may enable said committees to make full reports on all subjects committed to them.

SEC. 14. The standing committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the

session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also, those that seem of sufficient importance to be read before the Society, by title, abstract, or *in extenso*, upon the second day of the meeting.

ARTICLE VI.

VOLUNTARY CONTRIBUTIONS.

SECTION 1. After the reading and discussion of the annual reports, or at any other period during the meeting of the Society, by the vote of two-thirds of the members present, it shall be the privilege of any member to present to the consideration of the Society, either orally or in writing, communications on medical subjects, reports of interesting cases, or such other matters as may be deemed of interest to the profession, which communication may on motion be referred to the Committee on Publication, and if deemed by them worthy of preservation shall appear among the proceedings.

ARTICLE VII.

FUNDS AND APPROPRIATIONS.

SECTION 1. The funds of this Society shall be raised by individual voluntary contributions, by the sale of its publications, and by an annual tax of five dollars on each member of the Society, on the payment of which he shall be entitled to a copy of all the publications for the year.

SEC. 2. The funds thus raised may be appropriated for defraying the expenses of the annual meetings; for publishing the proceedings, memoirs and transactions of the Society; for enabling the standing committees to fulfill their respective duties, conduct their correspondence, and procure the material for the completion of their stated annual reports; for the encouragement of scientific investigations by prizes and

awards of merit, and for such other purposes as the Society may from time to time direct.

SEC. 3. Any member who shall fail to pay his annual dues for two successive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of such membership; and no member so dropped shall be reinstated in his membership until he shall have paid all arrears due by him.

ARTICLE VIII.

DELEGATES TO THE NATIONAL MEDICAL ASSOCIATION.

SECTION 1. The Society shall annually appoint, to represent it in the American Medical Association, one delegate for every ten members, and one for every additional fraction of more than one-half this number, whose certificates of appointment shall be signed and duly authenticated by the President and Secretary.

ARTICLE IX.

CODE OF ETHICS.

SECTION 1. The Code of Medical Ethics recommended by the National Medical Association, held in Philadelphia, in May, 1847, having been approved and adopted by this Society, shall have the full force and effect of any Article of this Constitution.

ARTICLE X.

DISCIPLINE OF MEMBERS.

SECTION 1. Any violation of the provisions of the Constitution or of the Code of Ethics adopted by this Society, shall be referred to the Board of Censors, for adjudication, from whose decision an appeal may be taken to the Society. Such violation being reported by the Board of Censors to the Soci-

ety, and established to the satisfaction of a majority of the members, the individual or individuals thus offending shall be excommunicated, and deprived from all the privileges of membership.

SEC. 2. The Society shall have jurisdiction in all cases of appeals taken from auxiliary societies, in which event their decision shall be final.

ARTICLE XI.

AMENDMENTS AND ALTERATIONS.

SECTION 1. No amendment or alteration shall be made in any of the Articles of this Constitution except at the annual meeting next subsequent to that at which such alteration or amendment may have been proposed, and then only by the concurrence of two-thirds of the members in attendance.

ORDER OF BUSINESS.

The following order of business is presented as a By-Law of the Society, which shall at all times be subject to a vote of a majority of all the members in attendance, and except temporarily suspended, shall be as follows:

I. Organization of the meeting.

II. Report of the Committee of Arrangements on the credentials of members, after the latter have registered their names and addresses, etc.

III. The calling of the roll.

IV. The reception of members not present at the opening of the meeting, and the reading of notes from absentees.

V. Reception of members by invitation.

VI. The reading and consideration of the stated annual reports from the standing committees.

VII. Reading and discussion of voluntary contributions.

VIII. The election of officers and place of annual meeting, and appointments by the President elect to to fill the standing committees.

IX. Resolutions introducing new business, and instructions to standing committees.

X. Unfinished and miscellaneous business.

XI. Reading of the minutes of the session about to conclude.

XII. Adjournment.

AMENDMENTS TO CONSTITUTION.

ARTICLE II, SECTION 4. Provided, that no physician be elected a member of this Society from a county having a local society, unless he be a member of the same, or unless there be some special reason for his election.—[1872, October 10th.]

ARTICLE IV, SECTION 1. Amended by striking out in the second line the words "second Wednesday in October," and inserting "second Wednesday in April," as the time for holding the annual meeting of the Society.

ARTICLE III, SECTION 4. Making it obligatory upon the Permanent Secretary to reside in Sacramento, striking out that clause requiring the meetings of the Society to be held in Sacramento, leaving the choice of such place with each session of the Association.—[1873, April 10th.]

ARTICLE IV, SECTION 1. Changing the time of meeting to the third Wednesday in April. —[1873, April 10th.]

ARTICLE VII, SECTION 3. Any member who shall fail to pay his annual dues for two consecutive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of his membership; and no member so dropped shall be reinstated in his membership until he shall have paid arrears due by him.—[1874, April 21st.]

ARTICLE V, SECTION 14. That the standing committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the

Society those papers that seem of sufficient interest for reference to the Committee on Publication; also, those that seem of sufficient importance to be read before the Society, by title, abstract, or *in extenso*, upon the second day of meeting.—[1874, April 21st.]

ARTICLE II, SECTION 4. After the word "Censors," add "by the exhibition of his diploma;" and after the word "election," add "and no voucher or vouchers of any member or members shall be taken as satisfactory evidence of any applicant's qualification for membership."—[1875, April 19th.]

ARTICLE II, SECTION 4. "Shall be entitled to permanent membership," to read "shall thereby become permanent members."—[1875, April 19th.]

ARTICLE III, SECTION 1. After the word "ballot," add "except Permanent Secretary." [1877, April 18th.]

ARTICLE III, SECTION 4. After "them," add "this officer shall not be subject to annual election, and shall not be removed except for cause shown."—[1877, April 18th.]

ARTICLE II, SECTION 6. After "the" be added "signature of the President and Permanent Secretary."—[1878, April 18th.

ARTICLE II, SECTION 4. A license from the Board of Examiners of this Society shall also be required of every candidate.—[1878, April 18th.]

ARTICLE III, SECTION 4. Strike out the words "shall reside in Sacramento."—[1881, April 21st.]

ARTICLE V, SECTION 1. Add the words, "on Gynecology; on Diseases of Women and Children; on Ophthalmology; on Necrology."—[1881, April 21st.]

ARTICLE V, SECTION 9. Add the words, "the duties of these committees shall be defined by a committee of three, appointed by the President for that purpose."—1881, April 21st.]

ARTICLE V, SECTION 10½. The President shall annually appoint a Committee on Medical Legislation, whose duty it shall be, by all lawful and honorable means, to promote the passage of Acts of legislation approved and recommended by this Society, with discretionary powers in emergencies.—[1881, April 21st.]

ARTICLE III, SECTION 1. After the words, "five members," the Constitution be altered to read: "These officers shall be elected the Society at large during the afternoon session of the second day of meeting. The election to be by ballot. Except Permanent Secretary, each officer to hold his appointment for one year, or until his successor is elected." [1884, April 16th.]

RESOLUTIONS RELATING TO THE GOVERNMENT OF THE SOCIETY.

Resolved, That a committee of three be appointed by the Chair to secure the passage of an amendment to the laws organizing the State Board of Health, to enforce the registration of deaths, births, etc., to enable the Board of Health to secure more complete statistics in relation thereto.—[1870, October 20th.]

Resolved, That a committee be appointed by the Chair to present to this Society, at its next meeting, any amendment which may be advisable, in their judgment, to the present law regulating the registration of births and deaths.—[1870, October 20th.]

Resolved, That the fact of a doctor of medicine being engaged in the manufacture and sale of any secret or patent medicine, or in any way promoting the use of them, shall render him ineligible as a member of this Society.—[1871, October 12th.]

Resolved, As a sense of this Society, that the subject of medical ethics should receive a larger share of attention in medical universities and colleges of the country, to the end that the true principles inculcated therein may be more thoroughly impressed upon the minds of the students, and, in consequence, more faithfully and scrupulously observed by them in their subsequent professional career.—[1871, October 12th.]

Resolved, That the Board of Censors shall recommend no candidate for membership until he shall have presented his diploma or other evidence of being a graduate of a recognized

school, and of good standing; and that no voucher of a single member shall be considered sufficient evidence of his qualifications.—[1871, October 12th.]

The Secretary was instructed to notify the committees of their appointment as soon as made by the President; also, that the Chairman of each committee be requested to notify each member of said committee of his appointment.—[1872, October 10th.]

Resolved, That the Committee on Revision of the Constitution and By-Laws be instructed to introduce into the code a law requiring the reading of the minutes of each session at the conclusion of the same.—[1873, October 10th.]

Resolved, That a Permanent Secretary be elected for the Society, who shall be paid for his services, and that an additional Assitant Secretary shall be appointed each year by the President at the place of the future meeting. The salary of the Permanent Secretary to be fixed by the vote of the Society.—[1873, October 10th.]

Resolved, That the Permanent Secretary be allowed a salary of one hundred dollars.—[1874, April 10th.]

Resolved, That the Chairman of the various standing committees hereafter present a synopsis of their several reports, the reading of which will be considered as fulfilling the provisions of the Constitution.—[1874, April 10th.]

Resolved, That the Publishing Committee be instructed to make out an alphabetical list of the members, together with their places of residence, for the Society, and have the same published in the next volume of Transactions.—[1874, April 10th.]

Resolved, That the President and Secretary be authorized to issue credentials to any member of this Society who desires to attend the meeting of the American Medical Association as a delegate.—[1874, April 10th.]

Resolved, That the Secretary be authorized to issue credentials to any member of the Society desirous of visiting any foreign medical association.—[1875, April 10th.]

Resolved, That this Society recognizes the diplomas of the Toland College, and places its graduates who are now members of this Society, or who may hereafter apply for membership, on the same footing as the graduates of other regular schools.—[1875, April 21st.]

Resolved, That the original founders of this Society are permanent members, and liable to yearly dues, and that all members once admitted are liable to yearly dues, whether simply as a delegate or otherwise.—[1875, April 21st.]

Resolved, That a committee of five members be appointed for the purpose of promoting the organization of County or District Societies.—[1875, April 21st.]

Resolved, That the San Francisco Medical Benevolent Society be and the same is hereby recognized as a local medical society within the meaning of the Constitution of the State Medical Society, which requires its members to belong to a local medical society, when there is one where they reside.—[1875, April 19th.]

On motion, it was ordered that the actual expenses incurred by the Board of Examiners be paid by the Treasurer of the Society.—[1875, April 19th.]

Resolved, That this Society indorse the views of the President as to the importance of the creation of local Boards of Health in every incorporated city and town in the State, and recommend the invocation of legislative aid in the promotion of so desirable an object.—[1877, April 18th.]

Resolved, That the practice of making annual contracts with individuals or societies for medical attendance is not only derogatory to the dignity of the profession, but is an actual violation of the code of medical ethics adopted by the

American Medical Association, as well as the code adopted by this Society.—[1877, April 18th.]

Resolved further, That the name of any member of this association who shall hereafter make or renew a contract for annual medical attendance upon individuals or societies, shall be stricken from the roll of the same.—[1877, April 18th.]

It was ordered that the actual expenses incurred by the Board of Examiners of this Society be paid by the Treasurer of the Society; who shall also pay such expenses of litigation as may be deemed necessary and expedient in order to carry out the objects of the law under which they were elected.—[1877, April 18th.]

Resolved, That the Publication Committee be requested to insert in the proceedings, in a collective form, all the changes in the Constitution, and the resolutions relating to the government of the Society, which have been adopted from time to time.—[1878, April 17th.]

Resolved, That the several local medical societies and Boards of Health throughout the State be requested to urge their respective city, county and town authorities to establish ordinances or laws requiring all practitioners of medicine within the limits of their respective jurisdictions to report in writing to their respective Boards of Health all cases of the more dangerous epidemic diseases coming under their professional observation.—[1878, April 17th.]

Resolved, That the Secretary of the Board of Examiners be instructed to communicate with the local medical societies, and urge that they prosecute violations of the medical law, and that they report progress from time to time to the Board of Examiners.—[1878, April 17th.]

Resolved, That this society appeal to all ministers of the gospel throughout the State, and urge them to use their influence, in all proper and available ways, to discourage the inhu-

man, degrading, and extensively prevailing practice of feticide.—[1878, April 17th.]

Resolved, Whereas, in consequence of the silence of the profession, the regular practice of medicine is very generally characterized as *allopathy* by the secular press, by medical dogmatists and sectarians, and by the public at large, and the epithet, *allopath*, applied to its individual members, through ignorance to a great extent; that the name was introduced by Hahnemann, to give distinction to his homeopathic dogmas; therefore,

Resolved, That we, the Medical Society of the State of California, in unison with the regular profession throughout the world, do hereby utterly repudite the name of *allopath*, as applied to ourselves, or *allopathy*, as applied to our practice, the regular profession of medicine knowing no sectarianism in medicine, practicing no exclusive dogma, nor in any way restricting its legitimate members in the treatment of their patients, but, on the contrary, giving them the fullest latitude to use any remedy or any means whereby the welfare of the sick may be promoted, their health insured, or their lives prolonged.—[1879, April 16th.]

Resolved, That the Medical Society of the State of California respectfully requests the American Medical Association at its next annual meeting, to memorialize the Congress of the United States to pass a law requiring the proprietors of all patent or proprietary medicines offered for sale in the United States of America, on and after July 1st, 1880, to accompany each bottle, box, and package of such medicine with a printed label or circular, plainly stating all the medicinal and other substances contained therein, and their relative proportions; or to adopt some form of legislation that wil accomplish the purpose herein contemplated.—[1879, April 17th.]

Resolved, That the Committee on Publication is hereby

instructed to receive no paper for publication later than fifteen days after the close of the Annual Session of the Society.

Resolved, That this Society, although formally accepting and publishing the reports of the various Standing Committees and the papers of voluntary contributors, holds itself wholly irresponsible for the opinions, theories, and criticisms therein contained, except when otherwise decided by special resolution.—[1884, April 17th.]

STANDING COMMITTEES

OF THE

Medical Society of the State of California, for 1884-1885.

Arrangements.—Dr. Washington Ayer, San Francisco, Chairman; Dr. Jas Simpson, San Francisco; Dr. W. W. Kerr, San Francisco; Dr. J. O. Hirschfelder, San Francisco; Dr. W. T. Garwood, San Francisco.

Prize Essays.—Dr. C. M. Fenn, San Diego, Chairman; Dr. H. S. Orme, Los Angeles; Dr. H. Gibbons, Jr., San Francisco; Dr. G. G. Tyrrell, Sacramento; Dr. H. S. Baldwin, San Francisco.

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Medical Topography, etc., etc., etc,—Dr. J. W. Robertson, Crescent City, Chairman; Dr. Erastus N. Foot, Lockeford; Dr. J. L. Dryer, Placerville; Dr. W. A. McCornack, Mendocino; Dr. H. S. Orme, Los Angeles.

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Dubois, San Leandro; Dr. B. F. Clark, Chico; Dr. W. R. Cluness, Sacramento.

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Practical Medicine and Medical Literature. Dr. Ira E. Oatman, Chairman, Sacramento; Dr. F. B. Kane, San Francisco; Dr. Robert F. Rooney, Auburn; Dr. A. G. Anthony, Oakland.

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Diseases of Women and Children.- -Dr. Robert Caldwell, Chairman, San Jose; Dr. H. N. Rucker, Merced; Dr. Chas. H. Steele, San Francisco; Dr. L. M. F. Wanzer, San Francisco; Dr. Mary E. Freeman, Woodland.

Indigenous Botany and the Domestic Adulteration of Drugs.—Dr. Wm. P. Gibbons, Alameda, Chairman; Mrs. M. K. Curran, M. D, San Francisco; Dr. V. Newmark, Benicia; Dr. Oscar Stansbury, Chico; Dr. H. Worthington, Los Angeles.

Medical Legislation. -Dr. W. R. Cluness, Sacramento.

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Publication.—Dr. W. A. Briggs, Sacramento, Chairman; Dr. Ira E. Oatman, Sacramento; Dr. G. L. Simmons, Sacramento; Dr. Jas. H. Parkinson, Sacramento; Dr. W. R. Cluness, Sacramento; Dr. G. A. White, Sacramento.

SACRAMENTO, Aug. 10, 1884.

To the President and Members of Committee on Publication, etc.:

GENTLEMEN—I have the honor to represent that, at its annual meeting in April, 1884, the Medical Society of the State of California accepted an invitation from the Faculty of the Medical Department of the University of California, and also from that of the Cooper Medical College, to appoint a committee from the Society to be present at the final examinations of their applicants for tke *Degree* of M. D. By resolution of the Society I was authorized to make the appointment. As said committee I have appointed A. B. Nixon, Washington Ayer, James Simpson, H. S. Orme and W. S. Thorne, and have received their acceptances.

Respectfully, IRA E. OATMAN.

CATALOGUE OF OFFICERS AND MEMBERS

OF THE

MEDICAL SOCIETY OF THE STATE OF CALIFORNIA.

PRESIDENTS AND VICE-PRESIDENTS OF THE STATE MEDICAL SOCIETY.

1856.

SACRAMENTO.

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E. S. Cooper..... San Francisco.
S. Langdon..... San Joaquin.
D. W. C. Rice..... Yuba.
R. K. Reid..... San Joaquin.
F. W. Hatch..... Sacramento.

1857.

SACRAMENTO.

PRESIDENT.

H. G[illegible]..... San Francisco.

VICE PRESIDENTS.

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O. Harvey..... El Dorado.
A. J. Spencer..... Santa Clara.
R. R. Ellis..... Sacramento.
A. R. Swan..... San Francisco.

1858.

SAN FRANCISCO.

PRESIDENT.

A. B. Stout,.....San Fransisco.

VICE PRESIDENTS.

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C. N. Ege.....Yuba.
A. J. Spencer.....San Jose.
I. E. Oatman.....Sacramento.
J. Morrison.....San Francisco.

1859.

SACRAMENTO.

PRESIDENT.

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VICE PRESIDENTS.

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H. W. Harkness.....Sacramento.
O. Harvey.....El Dorado.
W. G. Deal.....Alameda.
J. F. Montgomery.....Sacramento.

1860.

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C. A. Kirkpatrick.....Solano.
R. B. Cole.....San Francisco.
Ira. E. Oatman.....Sacramento.

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E. S Cooper.....San Francisco.

RECORDING SECRETARIES.

G. Taylor ..... [illegible]
G. L. Simmons ..... [illegible]

TREASURER.

H. W. Harkness ..... [illegible]

1861.

PRESIDENT.

[illegible] F. Harris ..... E. [illegible]

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[illegible] ..... [illegible]
[illegible] L. Simmons ..... [illegible]
[illegible] ..... [illegible]
[illegible] ..... San Francisco.
[illegible] ..... San Francisco

CORRESPONDING SECRETARY.

[illegible] ..... San Francisco

RECORDING SECRETARIES.

[illegible] ..... [illegible]
[illegible] ..... [illegible]

TREASURER.

[illegible] ..... [illegible]

1862.

[illegible]

[illegible]

[illegible]

[illegible] ..... [illegible]

[illegible]

[illegible] ..... San Francisco
[illegible] ..... [illegible]
[illegible] ..... [illegible]
[illegible] ..... San Francisco
[illegible] ..... San Diego

1871.

SACRAMENTO.

PRESIDENT.

H. Gibbons, Sr. ..... San Francisco.

VICE PRESIDENTS.

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F. W. Hatch ..... Sacramento.
F. W. Todd ..... San Joaquin.
J. F. Montgomery ..... Sacramento.

1872.

OAKLAND.

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G. A. Shurtleff ..... San Joaquin.

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J. J. Franklin ..... Sonora.
W. F. Cheney ..... Butte.
W. F. Hays ..... San Luis Obispo.

1873.

SACRAMENTO.

PRESIDENT.

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VICE PRESIDENTS.

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H. M. Briggs ..... Santa Barbara.

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Ira E. Oatman ..... Sacramento.

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G. G. Tyrrell ..... Sacramento.

1874-75.

[illegible] FRANCISCO.

PRESIDENT.

[illegible] ..... Solano

[illegible] PRESIDENTS.

[illegible] ..... Sacramento

..... Butte.

..... Tulare.

..... San Joaquin.

TREASURER.

[illegible] ..... Sacramento

[illegible] PERMANENT SECRETARY.

[illegible] ..... Sacramento

1875-76.

[illegible] FRANCISCO.

PRESIDENT.

[illegible] ..... [illegible]

[illegible] PRESIDENTS.

[illegible] ..... [illegible]

[illegible] ..... [illegible]

[illegible] ..... [illegible]

[illegible] ..... Los Angeles

TREASURER.

[illegible] ..... [illegible]

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[illegible] ..... [illegible]

1876-77.

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[illegible] ..... Chico.

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1878-79.

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J. M. Briceland.....Shasta
James Simpson.....San Francisco.
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TREASURER.

[illegible] ..... Sacramento.

PERMANENT SECRETARY.

[illegible] ..... Sacramento.

[illegible]

[illegible]

[illegible]

[illegible] ..... Santa Clara.

[illegible]

[illegible] ..... Stockton.

[illegible] ..... Fresno.

[illegible] ..... San Francisco.

[illegible] ..... Vacaville.

TREASURER.

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PERMANENT SECRETARY.

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1880-81.

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[illegible] A. Kirkpatrick ..... San Mateo.

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1881-82.

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1882-83.

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1883-84.

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[illegible]

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[illegible] SECRETARY.

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[illegible].

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[illegible]

[illegible] .....San Francisco.

[illegible]

.....Marysville.

.....San Francisco.

[illegible]

.....San Francisco.

.....San Francisco.

.....Oakland.

.....Los Angeles.

.....Sacramento.

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[illegible] .....San Francisco.

[illegible] .....Oakland.

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[illegible] .....San Francisco.

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[illegible] .....Oakland.

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Pawlicki, L.....San Francisco.

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Rucker, Hiram N.....Merced.
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Shurtleff, Benjamin.....Napa.
Shurtleff, G. A.....Stockton.
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Simmons, S. S.....San Francisco.
Simonton, W. B.....Oakland.
Simpson, James.....San Francisco.
Smith, H. W.....Placerville.
Smith, L. E.....Seattle.
Snider, T. A.....Sacramento.
Southard, W. T.....
Stansbury, Oscar.....Chico.
Steele, Charles H.....San Francisco.

Stockton, E. A.....Stockton.
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Stuart, Anabel McG.....Santa Rosa.
Sullivan, James F.....San Francisco.
Swan, Benj. R.....San Francisco.
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Todd, F. W.....Stockton.
Trembly, J. B.....Oakland.
Twitchell, W. L.....San Francisco.
Tyrrell, G. G.....Sacramento.
Van Orden, Kate N.....San Francisco.
Van Vlack, G. J.....San Francisco.
Voeller, Herman.....Sacramento.
Wagner, John.....San Francisco.
Wanzer, L. M. F.....San Francisco.
Watts, Nelson.....Chico.
Weldon, W. E.....San Francisco.
Wells, W. H.....Dixon.
Wheeler, P.....Oakland.
White, G. A.....Sacramento.
Whittell, A. P.....San Francisco.
Widney, Joseph P.....Los Angeles.
Wilder, A. M.....San Francisco.
Wilkins, E. T.....Napa
Williams, N.....Richland.
Woolsey, E. H.....Oakland
Worthington, H.....Los Angeles.
Wythe, J. H.....Oakland.

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Charles A. Cameron	Dublin, Ireland.
†Professor Louis Agassiz	Massachusetts.
S. W. Thayer	Vermont.
J. H. Wythe	Oakland, California.
John LeConte	Oakland, California.
Joseph LeConte	Oakland, California.
A. Ames	Boston, Mass.
S. M. Tibbitts	San Francisco.
P. Lansdale	United States Navy.
David Kindleberger	United States Navy.
W. E. Taylor	United States Navy.
S. F. Shaw	United States Navy.
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G. Farwell	United States Navy.
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